AMERICAN

Journal of Mining,

Engineering, Geology, Mineralogy, Metallurgy, Chemistry, etc.

VOLUME V.—Number 25.
New Series.

NEW YORK, JUNE 20, 1868.

$4 A Year in Advance.
Single Copies Ten Cents.

THE "OSCILLATING OR VARIABLE ECCENTRIC MOTION."

The term eccentric is applied in general to all such curves as are composed of points situated at unequal distances from a central point or axis. The ellipse, (the curve called the heart, which is much used in the traverse motion of spinning frames, and even the circle itself, when supposed to be fixed upon an axis which does not pass through its centre,) are examples of eccentric curves. The object of such curves, that are of frequent occurrence in machinery, is to convert a rotary into a reciprocating, rectilinear motion. The cam known among engineers and machinists as an eccentric, is a plate or pulley, turning on a shaft out of its centre. When keyed upon a shaft, we speak of the two centres as the centre formation and the centre of revolution by means of a surrounding strap, to which is attached a rod, we get the recip-

Fig. 1

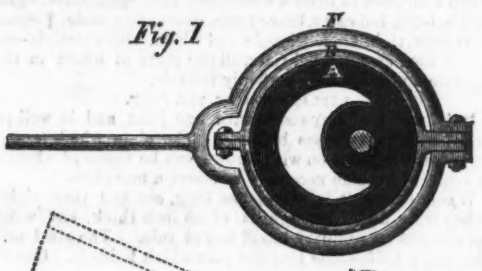
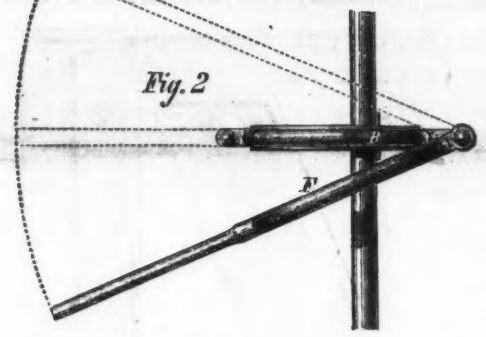


Fig. 2



rocating rectilinear motion, to the valves of steam engines; the same motion is common to pumps, feed gear of lathes, &c., and familiar to engineers and machinists who know that the degree of eccentricity or extent of throw given by an eccentric is equal to twice the distance between its centres of formation and revolution. The annexed engraving represents an eccentric, with a great improvement, patented by TIMOTHY KEELER and GEO. S. AVERY, of Danbury, Conn., by which oscillation is obtained. The eccentric or cam is usually keyed rigidly upon a shaft, and the eccentric strap is fitted to work easily upon it; the rod, known as the eccentric rod, is attached to this strap, and gets a steady reciprocating rectilinear motion; but on reference to the accompanying engravings, Figs. 1 and 2, it will be seen that by the attachment of the exterior band, F, the eccentric rod has perfect freedom to swing, while the eccent ric cam, **A**, is keyed firmly to the shaft, and revolves in its true line of motion. Also, by this arrangement, the eccentric rod may be set, if required, at almost any angle to the line of eccentric motion, and still work freely. By this means, marble, wood, etc., may be sawed or cut, of a tapering or angular form, without changing or moving the body being cut; or angular or irregular grooves in iron, etc., may be cut or planed with facility. Also, by this arrangement, two or more eccentric rods, B, may be attached to the same eccentric, for driving pumps or independent lathes. Offsets in eccentric rods can be frequently dispensed with, and the improvement is applicable and useful for feed motions, and in many cases which engineers will not be slow to discover. Letters Patent were granted for this improvement April 28, 1868.

Formation of Dendrites.

At a recent meeting of the Royal Geological Society of Ireland, Dr. Emerson Reynolds read a paper "On the Formation of Dendrites," an abstract of which we find published in the London *Chemical News*. He had some years since noticed that when solutions of salts, &c., were placed upon a plate of clean glass, and the glass placed between the poles of a Ruhmkorff's coil, the salts gradually work over the surface of the glass in beautiful moss-like forms, which in many cases were characteristic of the compound contained in solution—the state of dilution at the same time having some considerable influence. The author proposed to call them "electric cohesion figures." To produce them we will say that a drop of a solution of cyanide of potassium is put in the centre of a plate of glass, which is then placed upon a sheet of tin-foil. One pole of the coil is then brought into contact with the foil (it is immaterial which), and the other pole is placed in the centre of the drop; immediately on passing the current the solution begins to creep over the surface of the glass in moss-like convolutions. The dendritic markings on minerals, the author believed, were formed under a similar condition. He exhibited a beautiful manganous dendrite taken out of the museum. It was a slab of concoidal limestone, and in Dr. Reynolds' opinion illustrated his electrical explanation conclusively. There was originally a flaw in the limestone which was exactly at right angles with the plain of cleavage. Through these flaws, as was evident by the marks, the manganous solution had percolated, and had perhaps ultimately been the means of making the stone part in two, not, however, in the direction of the flaws, but in the plain of cleavage. The dendrites which were formed upon the surface, in this case were produced from the well known fact, that the two surfaces, at the instant of their separation, are in opposite electrical conditions. This phenomenon may be illustrated to a certain extent, by inserting a drop of the fluid into the interstice of a plate of mica, and then, on suddenly parting the plate, the dendritic forms are shown. To fix them, the author dusts some finely dried pigment over the surface of the still moist plate, and then fixes this by some transparent varnish.

SUNSPOTS AND RAIN ONCE MORE—PRICE OF BREADSTUFFS.

If the existence of sunspots has any influence at all on the amount of rain falling, it must be to diminish this amount, rather than to increase it. They who, some five or six years years ago, attributed the large amount of rain falling to the fact that the sun was clear of spots, were nearer the truth than those now maintaining that the unusual amount of rain is due to the existence of spots.

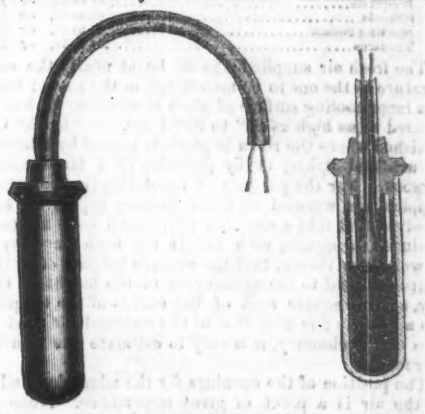
To illustrate this let us propose a few simple questions. Is not the first step in the process of rain-forming the evaporation of water from the earth's surface, principally from the ocean? Must not the amount of rain be greater when there is a good deal of evaporation, and *vice versa?* Is not the heat of the sun the cause of this evaporation? Would we have more than half the usual amount of evaporation, if half of the sun's disk were to disappear, and, consequently, half the heat it radiates were to be cut off? Would we then have more than half the ordinary amount of rain? There is no doubt that all these questions must be answered, if correctly, in the affirmative. When, therefore, the number or size of sunspots is such as sensibly to diminish the amount of heat radiated to the earth, evaporation, and the total amount of rain falling over its whole surface, must, of course, be diminished below the normal standard when there are no spots on the sun.

That this is actually the case, becomes every day more and more evident. We have remarked that in France no rain fell after the cessation of the frosts. The spring was entirely rainless, the first rain falling the present month. From Spain, and many parts of the Mediterranean, the same reports are coming in, and finally we hear a complaint from England that not a drop of rain fell for more than a month. No doubt reports will continue to reach us of like or opposite character, proving our former assertion that when we receive double our usual share, (7 inches per month, instead of 3½), we receive a part belonging to others. It is, of course, impossible to estimate the total amount of rain falling, since we cannot have meteorological observatories over the whole of the earth's surface.

Another fact proves, curiously enough, the same theory: It has been observed that the price of corn (which, of course, it in an inverse ratio to the abundance of the crop), was the higher in years when there were many sunspots, and the lower when the sun was free of them. It is evident that the success of a crop—other things being equal—depends on the amount of heat and moisture taken up by the soil. When, now, in accordance with this theory, the sun is spotless, it gives out more heat; more rapid evaporation takes place, and showers succeed each other oftener. When the sun is partly obscured by spots, evaporation is less active; we do not have that rapid succession of hot sunshine and cool, refreshing showers, which are necessary to the fullest growth of corn and other grain crops. For further proof, we have only to remind our readers of the meteorological peculiarities of those regions where the corn crop seldom ripens, and never gives a good yield.

ELECTRIC FUSE.

We are glad to be able to-day to give an illustration of what we are assured is an improvement upon the fuse in common use. The accompanying figures represent very clearly the construction of the electric fuse. The arrangement of fuse No. 1 is such that it can be used for the explosion either of gunpowder or nitro-glycerine. Great care has been taken to have it made of the very best materials. In order more espe-



cially to insure this, the manufacturers have put the preparation of the fulminating powder into the hands of one of the best chemists of the country. The arrangement is simple. The primer is enclosed in a glass tube. All outside coverings of the fuse are made of gutta-percha, while the two conducting wires, each three and a half feet in length, are insulated by means of selections of the purest quality of that article, thoroughly tested before being made use of. They can be relied on as being of perfect material and construction. So confident are the makers of this fuse, in regard to its perfection, that they have no hesitancy in warranting every one of them. To the users of the electric fuse, this is assuredly a most important point.

In case of fuse No. 2, the gutta-percha cup shown in the engraving is to be used with match-fuse, for the purpose of blasting with nitro-glycerine. The fulminating powder to be used is the same in quality as that used in case of No. 1, and is just as certain not to miss fire. We shall be very glad to learn of the extensive use of this fuse in blasting operations. It seems to possess qualities that should give it place above all others in use. SAMUEL C. BISHOP, of the Bishop Gutta-Percha Company, 115 Liberty street, will furnish any information that may be desired in regard to this very excellent article of fuse.

Ventilation of Public Buildings.

In a paper read by Gen. Morin, Director of the Imperial Conservatory of Arts and Trades, before a meeting of mechanical engineers, in Paris, the opinion is expressed that the different arrangements for getting rid of vitiated air and replacing it by fresh air by means of suction, when well proportioned and well carried out, are more effectual than those which depend exclusively on blowing in fresh air, as the latter do not, in every instance, and at all times, insure the vitiated air being uniformly and continuously expelled. The quantity of fresh air required, whatever may be the height from which it has to be drawn, and whatever the quantity, can be obtained by suction alone, and without the aid of any blowing apparatus, by giving to the inlet openings for the fresh air sufficiently large dimensions, and placing them in positions. Suction can be easily obtained either by means of open fireplaces with chimneys, or similar heating apparatuses, or by means of special fire-places placed at the bottom of the exhausting flues, and acting as auxiliaries when the rooms are large. The air to be removed ought to flow towards the bottom of these fire-places, and, whenever possible, by means of special air-flues leading from openings close to the sources of ventilation. Ventilation by suction through fire-places and chimneys can be adapted to the proportions and arrangements of every kind of room, as it resembles the ordinary and natural ventilation of rooms, and the volume and temperature of the fresh air can be varied as required. It is only necessary to construct at small expense fire-places with thin chimneys and air-flues, which, when completed, cost but little for repairs, and to supply the fire-places with fuel, which any common attendant is competent to do. On the contrary, ventilation by

means of blowing and other mechanical apparatus, necessitates, besides the flues and chimneys common to both systems, the addition of blowing machines and engines with special air-passages, special artisans, engineers, and firemen, and involves an extra cost for keeping up. Besides, this system does not afford the same guarantee as that of suction, against differences of vitiated air, especially in hospitals several stories in height, where it may pass from one room into another through the openings of the discharging flues, when it happens that the pressure and movement of the air of a room are disturbed by openings of doors or windows. There may be special cases where it would be advantageous to use mechanical apparatus in connection with suction; for instance, where the quantities of air to be removed differ greatly, from one day, and from one hour to another, as in the case of St. George's Hall, Liverpool, in which mechanical ventilation exclusively is used, and the buantity of air required varies in the extreme proportion of 1 to 50. The following proportions for the quantity of air required to be supplied *per hour for each person* are based on the results of a large number of experiments by different observers, and although larger than the rates formerly adopted, are not, in Gen. Morin's opinion, at all exaggerated:

	Cubic feet
Schools, for each child, per hour	400 to 500
Schools, for each adult, per hour	800 to 1,000
Meeting halls, for each person, per hour	1,000 to 2,000
Theatres, for each person, per hour	1,400 to 1,700
Prisons, for each person, per hour	1,700
Workshops, ordinary trades, per hour	2,000
Workshops, unhealthy trades, per hour	3,500
Ordinary hospitals, per hour	2,000 to 2,400
Hospitals for epidemic cases	5,000

The temperature of the air in places abundantly ventilated, and having a continual renewal of air, can be maintained at a higher point than in rooms not well ventilated; but as a general rule the temperature should not exceed the degrees here given without fractions, on both the Fahrenheit and Centigrade thermometer.

	Fahr.		Cent.
Workshops	59,	or	15
Hospitals	61 to 64,	or	16 to 18
Schools	66 to 68,	or	19 to 20
Meeting rooms	66 to 72,	or	19 to 22
Theatres	68 to 73,	or	20 to 22

The fresh air supplied should be at nearly the same temperature as the one to be maintained in the room; but if there is a large cooling surface of glass in windows, it has to be increased to as high as 85° to 95° Fahr. (30° to 35° C.), or diminished where the room is partially heated by a large number of artificial lights, or by presence of a large concourse of persons. For the purpose of regulating the temperature, the supplied air, warmed by some heating apparatus, has to be received first into a chamber into which cold air can be introduced for mixing with it. It has been found by practice as well as by theory, that the average velocity of air in the flue is proportional to the square root of the height of the chimney, and the square root of the excess of the temparature of the air in the flue over that of the external air; having the area of the chimney, it is easy to estimate the volume of air extracted.

The position of the openings for the admission and removal of the air is a point of great importance. None of these should be on a level with the floor where they would be obstructed by sweepings and rubbish. All openings for the admission of air, whether warm or cold, should be placed near the ceiling, or at such height that no person may receive the impression of a draft. Openings for the abstraction of air should, on the contrary, be placed generally in the lower part of the room.

T velocity of the vitiated air, in its passage outward, should continually increase through the several passages of the building, which is best effected by the use of a single shaft. On its entrance the air should move about three feet per second, and at its exit about six feet. An excess of 70 to 80 degrees Fahrenheit in the temperature of the discharging shaft over that of the external air, will in most cases produce the required increase of speed; but in theatres, where the passage for air must be complicated, a difference of temperature of 95 to 105 degrees Fahrenheit is required to effect the desired result. When the supply openings are on the side of the room at a considerable hight, the velocity of the entering air may be as high as one meter (33 inches) per second without causing inconvenience; but when such openings are in the ceiling so that the air descends vertically, its velocity should not be more than half that just stated.

The suction system has been objected to for causing strong drafts when an outside door is opened, but this may be obviated by adopting suitable proportions, and by warming the ante-rooms and passages leading out of the building. The chimneys of dwellings will generally produce sufficient ventilation, even when there are no fires, on account of the ordinary difference in the temperature within and without. However, this ventilating power may be easily increased by introducing into the chimney a vertical pipe containing a few gas burners. In answer to a query whether it had been found essential to introduce moisture with the air supplied, Gen. Morin remarked that in the plan of heating adopted by him, a small portion of heated air was mixed with the cold air, and it was found there was moisture enough to prevent any sensation of dryness in the air when breathed. In reply to an inquiry whether the system described would answer for ventilating in hot countries where it would be required to cool the supply of fresh air, or whether the points of admitting and discharging air would in that case have to be reversed, Gen. Morin said the Lecture Theatre of the Conservatoire, in which they were then assembled, was ventilated upon the plan described in this paper, and it was found in practice that the room could be cooled in warm weather more readily by drawing off the vitiated air near the floor and admitting fresh air brought from below near the ceiling. In very hot countries it might be found essential to have recourse to a fine spray of water, just sufficient to moisten the surface over which the fresh air had to pass on its way into a room, so as to bring into play the effect of rapid evaporation. All the details of the plans, as applied in the Public School, Rue des Petits Hotels, in the Theatre Lyrique, and in the Conservatoire, were exhibited and explained by the speaker. The uniformity of temperature in the Theatre Lyrique was a striking result. At a trial in November, when the temperature without was 4° C., on the stage it was 19°, in the orchestra stalls 21°, in the boxes, 23°, and in the gallery, 23½° C. This system of ventilation was highly commended by the speakers who followed Gen. Morin.

Practical Letters.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

Steam Cars on Street Railways.

For about seven years we have had steam cars, falsely called "dummies," on the upper part of the Second avenue railway. They run at double the speed of horses, and at less expense. Not much complaint is made against them, although some horses shy at them. The causes of the shying are not agreed upon; some suppose that the puffing blast is one cause; others that a vehicle going without horses frightens horses that have been hurt by carriages backing against them; others that the high speed frightens them. Horses often see trains running into stations at high speed, after the locomotives have left them, and observations on their behavior in such cases may help to show whether the mere vehicles in motion frighten them. It was observed in England, that horses were frightened by the steam carriages when they ran at high speed, but not when they run at the usual speed of horses. The puffing blast was believed to be the chief cause, and the English steam carriage has avoided it on this account; and so do the real dummies that draw trains down to Canal street, on the Hudson river railway.

From all that I have heard or seen, I believe that cars that run at the usual speed of horses and without noise, and that look like common cars, will rarely be noticed by horses; and that the few that do notice, would at once get used to them, by a little of the mild training recommended by Mr. Rarey; that is, by letting them examine the cars and find out for themselves that there is no harm in them.

It has been doubted by street railway directors whether it is for their interest to introduce these steam cars on their roads. The Second avenue directors talk unfavorably; they say it might have been better if they had not used them, yet they continue their use, and their doubtful talk may be simply to prevent opposition, of various kinds. One of the disadvantages on that road was, that the rails were too light, and had to be replaced by heavier rails soon after the steam cars got actively at work on them; so they state the case. But the case is differently stated to us by an engineer who was invited to design a car for them. He says that the cars were too heavy for the rails; that he designed a little locomotive to draw their cars, and carry fourteen outside passengers, and that the little engine and its load would not have been heavier than a crowded car, and would not have injured the rails more; but as he did not offer to guarantee that this design would work economically, and as the builders of the cars adopted, offered to put on one and run it for sixty days, and take it away if they did not like it, they were persuaded to take the course that seemed to involve no risk, yet which really did involve the risk of a failure of the rails. Had they laid their first rails for heavy steam cars, they would probably have done well in adopting them; or, having laid rails for horse cars, they would have done well had they adopted the light steam car designed for them. And this they seem now to believe, for their last purchased steam cars are mere traction engines that carry no passengers.

Beside the lightness of the rails made for horse cars, there was another difficulty; the higher speed caused greater wear and tear. There seemed to have been excessive economy or rather parsimony, in regard to the employment of engineering talent. In short, the whole case was an engineering blunder; and the fact that it was not a cause of great loss is encouraging evidence in favor of steam, instead of horse-power on suburban and street railways.

As to the cars adopted, they do injustice to the subject. They are badly designed, and badly built. They are geared, so that the engines make two turns to one turn of the thirty-inch driving-wheels. The gearing is noisy, gives a disagreeable motion to the car-body, wears out fast, and is broken by the lurching that sometimes occurs. The engines are exposed, and wear out in a fraction of the time they would last if properly enclosed. There is no proper proportion of power to work; but each engine is injudiciously made so that it can draw double its proper load. To judge by such steam cars what properly designed cars could do, is a sure way to discourage all concerned.

But who is to help the enterprise? Thus far it has been left to inventors whose experience as engineers and constructors has been very limited. Not one street railway company has risked the price of a car. Several have been to locomotive builders, and asked them to build and *guarantee;* but the builders have told them that it was not their business to guarantee in such cases. The directors, in several cases, have said that they might have to pay too much for permission to use steam, however inoffensive it may be made. The public authorities, very properly, will not license beforehand machines that they know little about.

The directors ought to take the risk. They ought to employ the best designers and builders, and get up the best car they can; then get up another if that be imperfect; and when they have got one that deserves a license, then put it to work, on trial, and ask the authorities to examine it and allow the roads to be stocked with such cars. If there be any improper opposition the public can be made to understand the whole case; and whether the opposition arise from ignorance or dishonesty, it could be overcome. The intimations often made that black-mail will be required, may be true or false; but it is certain that the directors ought not to be kept inactive by the fear of such villainy. Were they liberal they would rather meet such a charge than shun it.

F.

[WRITTEN FOR THE AMERICAN JOURNAL OF MINING.]

LESSONS IN MECHANICAL DRAWING—No. IV.

BY T. P. PEMBERTON.

DRAWING TOOLS AND INSTRUMENTS.

There are certain rules and scales that the draftsman requires before he can commence the delineation of any object, as mechanical and architectural drawings have to be made to a scale when the magnitude or number of the parts do not admit of their being drawn the full size. When a machine has been completed, and is about to be sent from the workshop, it is often found necessary to have a drawing made of it that will give a machinist the exact dimensions by which he can build another, in all respects similar to the first. It is the draftsman's office to first sketch the machine as it really is, and then to take it in detail and measure every piece, so that lengths, breadths, thicknesses, diameters, areas, and the position of every part of the machine may be accurately obtained.

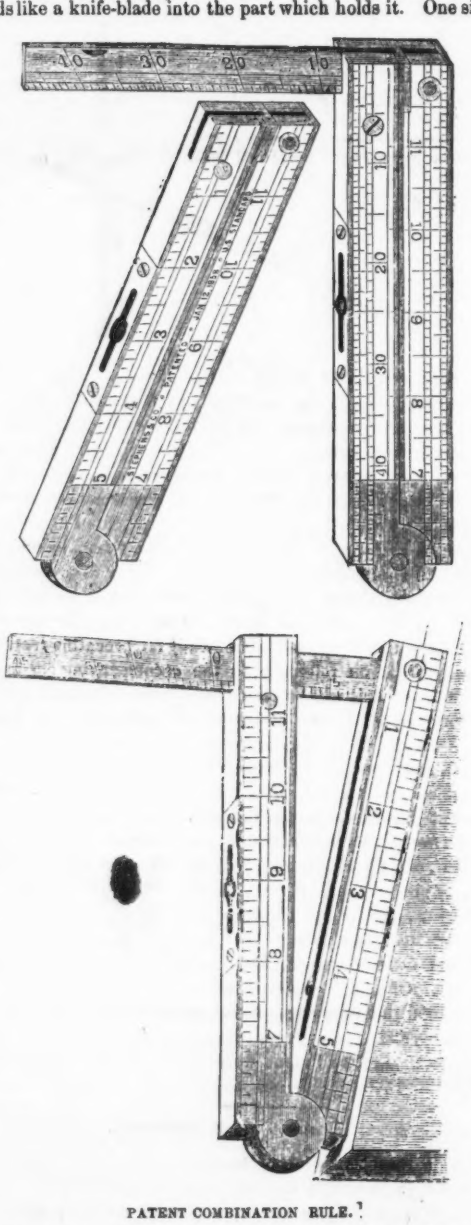
The tools required for this primary operation are found in any machinist's or carpenter's tool chest. They may also be included among the draftsman's implements. These tools comprise a rule, try-square, callipers (inside and outside), spirit-level, plumb, and clinometer or slope-level. Furnished with these, a sketch-book, or paper block, pen, ink, and pencil, the draftsman is prepared to make an accurate sketch of any work, whether it be of wood or iron.

The manner and method of sketching will be described in a future lesson; at present we confine ourselves to the tools used in the operation. We wish, first, to see the student in his study, or drawing office, supplied with all necessary instruments, and with a thorough knowledge of their names and use, before he commences either sketching or drawing. The engravings (which are just half size,) illustrate a patented instrument invented by L. C. STEPHENS of Hartford, Conn., which combines in itself a carpenters' rule, spirit-level, square, plumb, level, indicator, brace scale, draughting scale, T square, protractor, right-angle triangle, and which, with a straight-edge, can be used as a parallel ruler, all the parts of which in their separate application are perfectly reliable.

EXPLANATION OF THE RULE.

It is made of boxwood, with one joint, and is well protected with heavy brass binding. The plate which protects the glass, being put on with screws, can be removed, should it by accident become necessary to insert a new glass.

When folded it is six inches long, one and three-eighths inches wide, and three-eighths of an inch thick, and weighs the same as an ordinary broad bound rule. The steel blade folds like a knife-blade into the part which holds it. One side



PATENT COMBINATION RULE.

of the blade is graduated, and the figures 5, 10, 15, 20 to 45, denote the degree of the angles, which are formed by opening the legs of the rule, the blade sliding through the groove in the end of the leg.

When extended to 45 of course the angle is 45, and the

blade has fallen 27½° from a right angle or square. Hence the angles formed by the leg and blade decrease just one-half as fast as the angles formed by opening the legs of the rule increase. The upper edge of the other side of the blade is also graduated into inches and eighths, and numbered 1, 2, 3, 4, 5, 6, the graduations decreasing towards the end of the blade. This scale shows the pitch of the foot. Thus in the cut which represents the rule as a slope-level the angle indicated is 9°, and the pitch of that angle or inclination as shown on the other side of the blade is seven-eighths and one-sixteenth of an inch on a base line of six inches, or one and seven-eighths inches on a base of one foot. By opening the rule 15° the scale on the other side shows a pitch of one and five-eighths inches in six inches, or three and two-eighths inches in a foot.

The utility of these scales will be readily seen by those who have occasion to ascertain the angle or pitch to the foot of any inclined plane. The plumber, for instance, with this instrument can ascertain not only the angle, but the pitch to the foot of any roof.

The inner edge of the leg which holds the glass is also graduated to measure the angles, that are formed by turning the blade in the leg which holds it; this arrangement is especially adapted to iron-planers. These degrees show how much the right-angle is reduced as the blade falls from that position. The machinist desires to reduce a piece of iron to a certain bevel, but instead of going to the planer to "cut and try" as is usually done, he finds the degree of the angle he wants by applying the instrument to his pattern; then by turning the index of the planer to the proper degree, he can cut the exact angle required. To apply it to a pattern, open the leg which holds the glass (keeping the blade down on the bottom of the groove) until the blade and leg in which it turns fit two sides of it, and observe the degree indicated by the blade. If at 40, then as before explained we know the pattern is just 20° less than the right-angle or square, and to plane a piece of the same angle as the pattern, we place the index of the planer at 20°, the pattern being an angle of 70°, and 70° +20°=90°—a right-angle or square. This application of the instrument all mechanics who understand it will greatly admire. The pattern-maker by using this tool saves the machinist considerable labor, both working by the same degree.

The surveyor will perceive its adaptation in the laying of angles. Open the part which holds the level until the end of the blades rest squarely upon the inside of it, and we have a T square. In this position it is also a right-angle triangle, and with the aid of a straight-edge can be used as a parallel ruler. One side of the blade is divided into twelfths, also the inside edge of the leg which holds it, which arrangement constitutes the brace scale. Place one point of the dividers on the third inch of the blade (while the rule is in form of a square) and extend the other over to the third inch on the scale of twelfths on the inside edge of the leg, and the distance between the two points of the dividers applied to the scale of twelfths on the rule will give the length of the brace in feet and inches—inches and twelfths on the rule representing feet and inches in the brace.

The adaptation of this instrument to the measurement of height and distance is obvious from the following illustrations: A carpenter goes into the forest to find a tree which will furnish forty feet in length of clear timber. He finds one which seems adapted to his purpose, but a bend or limb near the top leaves a doubt in his mind in regard to it. He now takes the instrument from his pocket and measures off forty feet in any direction from the tree, and marks the point where the measurement terminates; then fixes the leg which holds the level at an angle of 45°, and places the instrument upon this point (taking care to keep it level), then sights along the leg in to the tree, and if the line of sight strikes below the bend or limb, he is safe in cutting the tree. To measure the height of a pole, tree, or house, adjust the rule to an angle of 45°, and recede from the object until a line of sight along the base of the instrument will strike the bottom of the object, and another through the raised leg will strike the top of it; then measure the distance from the point where the instrument stands to the foot of the object, and you have the elevation. (If necessary to elevate the instrument, the height from the bottom of the object must be added to give the true result.)

To measure the distance to any inaccessible object, the width of a river, for instance, lay off a base line of any convenient length, adjust the rule to a square and place the base of the instrument upon the line so that a line of sight from the blade will strike the object, and mark the point upon the line where you commence operations; then change the instrument to an angle of 45°, and move it along the given base line until the line of sight from the raised leg strikes the object as in the former position; then measure the distance from the joint of the instrument to the point previously marked, and you have the distance to the object.

The slotted screw which passes through the end of the leg that holds the level is used in adjusting the square, should it wear so as to require it. With a small screw-driver the blade may be raised or depressed by turning this screw either way. The square is strong, firm, and reliable, there being a heavy metal stop to prevent its going back too far, while it is held firmly in place while in use by a broad metal strap through which the screw passes.

Carpenters, joiners, ship-builders, draftsmen, engineers, and all classes of mechanics, will find this instrument useful in measuring and examining work.

Tenacity of Metals and Alloys.

The following experiments have been made to test the tenacity of metals and alloys, with the annexed results. The tension was obtained by the use of a winch, and measured by a spring balance. The wires used were double, gauge No. 23:

	Breaking strain for double wire.
Tin	under 7 lbs.
Lead	" 7 lbs.
Gold	about 25 lbs.
Copper	" 30 lbs.
Silver	" 50 lbs.
Platinum	" 50 lbs.
Iron	" 90 lbs.
Tin-lead alloy	under 7 lbs.
Tin-copper alloy (12 per cent copper)	about 7 lbs.
Copper-tin alloy (12 per cent tin)	" 90 lbs.
Gold-copper alloy	" 75 lbs.
Silver-platinum alloy	" 80 lbs.
Steel	above 200 lbs.

Mining Summary.

Nevada.

Gleanings from Ross Browne's Report.

REDUCTION OF COMSTOCK LODE ORES.

The ores from the Comstock lode are probably the most docile silver ores found in Nevada, and the process used for their reduction is of the simplest kind. After crushing by the stamps, the large boulders being first reduced to a moderate size by hand labor or by Blake's patent crushers, the material as it passes from the battery is collected and settled in tanks to avoid as much as possible the risk of fine particles passing off with the superfluous water. In spite of all precautions, much loss is sustained from this source, experience showing that the most impalpable of the slum is the richest in proportion. Out of 40,432 tons worked at the Gould & Curry mill, 4,431 tons were lost in this manner.

From the tanks the crushed ore is passed to the iron grinding pans, a description of which will be found in preliminary report, pages 76 and 77. The charges vary from 500 to 1,500 pounds, according to the character and capacity of the pans used. In these pans the ore is ground from four to six hours, being in that time reduced to an almost impalpable powder. The mode of treatment varies considerably, some mill men using a variety of chemicals such as sulphate of iron, muriatic and sulphuric acids, &c., while others dispense with them almost entirely. Their object is to assist the reduction of the silver in combination, but much uncertainty exists as to their beneficial operation. Each charge is invariably mixed with a certain amount of salt, varying with the richness of the ore. Towards the end of the process the quicksilver is usually added, the mullers of the pans being at the same time slightly raised to prevent the grinding or "flouring" of the mercury. After a sufficient time has elapsed to allow a thorough amalgamation, the pulp is thinned by the addition of water, and revolved in such a way as to allow the amalgam to settle to the bottom. For economy of time this is usually accomplished in large vats called "settlers," especially adapted for that purpose. The refuse matter is then drawn off and treated by various methods of concentration, to be spoken of afterwards. The process is used only for second and third class ores. The Central mill in Virginia, and the Washoe reduction works and Ophir mill in Washoe valley are the only ones adapted to this method, the amount of ore requiring this treatmeant being but a small percentage of the entire product of the lode.

Some mill men amalgamate in the battery while the ore is being crushed, but the practice is not by any means universal. In fact, the treatment of ores is in a great measure empirical, but little attention being given in Nevada to analytical chemistry, and the adaptation of the working process to the results developed.

CONCENTRATION OF TAILINGS.

Concentration is employed only in the treatment of the "tailings" or sands from which all the metal has been extracted which could be saved in the mill. The tailings are usually turned into the nearest watercourse, (many mills being so situated as to have no facilities for the construction of the reservoirs) and the right to use them rented to other parties. Many plans have been suggested for their concentration, but the one in general use is extremely simple. It consists merely in passing the sands through shallow sluice boxes, the bottoms of which are covered with thick blankets. The fall of these sluices is considerable to prevent packing of the sands, but the stream of water is regulated so as to cover the blankets with a thin sheet only. In this way the heavy metalliferous particles are retained in passing over the rough surface of the blankets, the lighter sands passing off in the water. After a sluice box has been running several hours, the water is turned off, the blankets washed in a tank of water, and returned to their places. This constitutes the entire treatment. When the tank is nearly full of tailings, it is emptied and the resulting mass, considerably increased in value by the elimination of waste sands, is ground and amalgamated in the manner already described. Latterly this has become quite an extensive branch of our mining business, and it is said to yield a good return on the capital employed. The total value of all tailings saved in this manner was probably about $200,000 for 1866, which will be doubled for 1867. These figures can only be considered approximations, but they serve to show how small a percentage of the great loss is saved by these means, and how large a yield is yet open for improvement.

LOSS IN THE REDUCTION OF SILVER ORES.

It is suggestive also to mark that the loss of metal, according to assay, foots up $471,155 17, while the total quantity saved only amounts to $816,979 62, out of $1,288,132 79. Of thirty-two lots sent to mill, only two returned over seventy per cent. of the fire assay value; this, too, in one of the best managed companies, and when the mills are boasting of the improvements in their machinery and processes. What must have been the waste during the early days of silver mining, before the present incomplete experience had been attained?

That the present enormous waste of the precious metals by custom and company's mills might be avoided, is clearly demonstrated by the success of the companies which re-work the tailings thrown away by these mills. In the vicinity of Virginia City there are several miles of flumes, all lined with blankets, which require hundreds of men to change every few hours. The tailings thus collected yield a larger profit, according to the cost of their production, than the ores worked in the mills. Nearly one-third of the bullion shipped from Storey county, Nevada, is obtained from the waste of the mills collected in these flumes.

[A careful consideration of this portion of the subject is enough to convince any one of ordinary judgment that the sooner we have a National School of Mines in the midst of our mining regions, so that such an enormous waste can be prevented, the better.—ED.

PRICE OF LABOR AND COST OF LIVING.

Miners receive from $3 50 to $4 per diem, and blacksmiths, carpenters, brakemen and engineers, from $5 to $8. Mill hands earn from $3 to $5, according to the responsibility of their positions.

In towns a large proportion of the population board at restaurants or hotels, at rates varying from $8 to $12 per week. Many mills are so situated that they are compelled to keep a boarding-house for the men employed, in which case they are usually paid so much a month including their board. This system is the inevitable result of the unsettled disposition of much of our population, who, in spite of oft-repeated warnings, are yet ready to believe that every new mining camp discovered is better than the one in which they are located, and rush to it accordingly, in the hope of making the "big strike" which shall bring them wealth and comfort in a day, instead of winning them by the old well-tried rule of patient industry and perseverance. There are many signs, however, of improvement in this respect, but the number of those who have come to look upon Nevada as a permanent home are very few, indeed. House servants receive from $30 to $40 a month. Many Chinamen are employed in this capacity at about the same wages

PLAN OF THE SUTRO TUNNEL.

The proposed tunnel begins 3½ miles below Dayton, between Corral and Webber canyons. The distance from the mouth of the tunnel to the Savage Works is a little over four miles, but as the Comstock lode dips to the east, it will be cut 20,178 feet. It will pass through the different ledges in Silver Star and other districts nearly at right angles. Allowing a grade of one inch in 100 feet, or four and four-tenths feet per mile, it will be 1,922 feet below the floor of the Savage Works. The topography of the country is admirably adapted for sinking shafts, four of which are proposed to be put down. They will not only supply the tunnel with fresh air, but will greatly expedite work, as drifts can be run each way after reaching the grade of the tunnel. The distance of the first shaft from the mouth of the tunnel is 4,070 feet; depth, 443 feet; second shaft from first, 5,150 feet; depth, 980 feet; third shaft from second, 4,060 feet; depth, 1,436 feet; fourth shaft from third, 4,654 feet; depth, 1,360 feet; from fourth shaft to Comstock lode, 2,244 feet; depth, 1,942 feet. These are convenient distances for working and ventilation. The mouth is about one and a half mile from Carson river, and 150 feet above high water mark. There is a gradual descent for about one-third of a mile, in which a fall of 100 feet is obtained, giving sufficient area for dumping and mill sites.

The vertical section of the tunnel through rock not requiring any support is a circle 12 feet diameter, with offsets 3½ feet from the bottom, about one foot wide, which support the superstructure of the railroad track to be used for removing ore and debris from the mine. The space under the superstructure is for drawing the water from the lode. Where timber supports are required to sustain the adjacent rock, the top is level, and 10 feet wide, clear of the framing; height eight feet to the bottom of the timbers supporting the railroad, where it is 12 feet wide in the clear. Below this there is a triangular space, three feet seven inches in depth, forming the water-way.

THE SAVAGE AND REESE RIVER MINES.

The Savage, Morgan and Mansey, Diana, Providencia, Whitlatch, Union, Troy, Buel North Star, and many others in the neighborhood, have been extensively mined, and at times have been productive. A description of each, where all are so much alike, would be exceedingly tedious. It may be remarked that those mentioned, as well as others, are within an area of a few hundred yards square, and that in the district are several miles of area of equally good ground, judging from the slight developments made upon the surface, and where undoubtedly as good mines could be opened as those mentioned. In the great mining enterprises of Virginia and Gold Hill in western Nevada, where in the last six years near $70,000,000 have been taken from the mines, there exists but one grand lode, the Comstock, which is divided through its length into a great number of claims, or mines, many of which return largely to their owners, while some return nothing. This has been the most productive vein in the world. In the Reese River district such a gigantic lode has not been found, but there extends a belt some six miles in length and half a mile in width, in which are innumerable veins, such as here described, of highly concentrated ore, easily and cheaply mined. From a few mines upon this belt there were produced in the last month $100,221 87. There appears to be room for many times the present mining operations, with the same proportion, yet the resulting figures are so great that one scarcely ventures to make the calculation. An increase based upon a full development of all the mines of known value would amount to several millions of dollars monthly, from an area not exceeding fifteen square miles, the utmost capacity of the district. Upon a close examination of the ground the conviction is irresistible that there will be a greatly increased production within a few years. A full development of the district awaits the coming of the railroad, with capital, labor, and cheap subsistence.

THE KEYSTONE MILL—EXPENSES OF REDUCTION — TAXATION.

The Keystone mill, at Austin, may be taken as a sample of its class, from its arrangement, construction, and cost. It was built 1865, by Mr. A. L. Page, its chief owner and manager, with several additional buildings, as residence of superintendent, stables, blacksmith shop and store-house, all of brick, at a cost of $91,800. The mill is divided into four rooms or divisions: 1st, boiler and engine room; 2d, battery room; 3d, furnace room; and 4th, amalgamating room. The first three occupy the front, and the last is in the rear of the battery room. Their dimensions are as follows: engine room, 45 feet deep by 25 feet front; battery room, 45 by 35; furnace room, 50, by 140; and the amalgamating room, 45 by 35—making a total frontage of 200 feet with a depth of 90 feet. The engine is of 60 horse power. There are 20 stamps of 750 pounds each, drop eight inches, and 78 times each minute. There are eight reverberatory furnaces with hearths 11 by 13 feet; 15 pans or tubs, five feet in diameter; six settlers, six feet in diameter; with retorts, smelting furnaces, &c. The total amount of freight hauled from California for this mill as machinery, lumber, and material for building, was 140 tons, at a cost for freight of nine cents per pound from San Francisco. (The price now is six cents.) The cost of the machinery in San Francisco was $18,000, and the total cost, as stated, $91,800. It crushes dry, roasts and amalgamates, producing bars of bullion at a cost to the mill of $25 per ton. For custom work it charges $45 per ton, and agrees to return 80 per cent. of the assayed value of the ore. Twenty tons of ore can be reduced in each 24 hours. Four cords of wood are used per day in making steam for the engine and for heating the pulp in the pans, and eight cords for the roasting furnaces. Wood usually costs $7 per cord. Salt, of which a considerable quantity is used in chlorodizing the ore, is furnished from the large fields in different parts of the State, at from $30 to $40 per ton. About 200 pounds of quicksilver is used at each charge of a pan, but varying with the amount of silver in the ore. The quicksilver costs 60 to 75 cents per pound; about one per cent. of it is lost. The wages paid are, for amalgamator, $10 per day; first engineer, $8; second engineer, $6; fireman, $6; blacksmith, $7; carpenter, $6; pan attendants, roasters, and battery feeders, $4 each.

The expenses attending the production are: first, mining the ore, exceedingly variable; second, hauling to the mill; third, the State tax of 1½ per cent. upon ore after deducting $40 per ton; fourth, cost of milling, $45 per ton; fifth, internal revenue tax on bullion of ½ of one per cent.; melting and assaying, one per cent.; and transportation to San Francisco, three per cent.—making a total tax of six and a half per cent., besides the cost of mining, hauling, and milling. To these are to be added the income tax, the many stamps used on receipts, certificates, checks, &c., incident to the constant handling and exchange of valuable property, the customs and revenue tax levied on machinery, raw and manufactured material, of which the miner is a destructive consumer. Thus it will be observed how disproportionate are the taxes imposed upon the miner, compared to other occupations; the tax being both upon what he produces and what he consumes, while he is without the protection given to others. A tax on iron may be added by the miner to the price of the iron, but a tax on silver is never returned, and the silver miner pays the two taxes. All taxes are paid in currency, but estimates are also made in currency when taxes are so paid. The business throughout the State, with the exception of Pahranagat, is carried on in coin, estimated at par, and all expressions of money used in this report mean coin, unless currency is expressly mentioned.

THE MURPHY MINE AND MILL.

The Murphy is the only developed productive mine in this neighborhood, and its success has given celebrity to the district. It was located by G. H. Willard, John Murphy, Jo. Patty, and others, in 1864, and is 1,000 feet in length. Its course is north and south, dipping to the east at an angle of 46°, and the lode is

about 20 feet in thickness. It has been developed by an incline 130 feet in depth, from which levels have been run and ore extracted, worth about $130 per ton. It appears from the working that the ore is not continuous throughout the vein, but exists in chimneys of one to seven feet in thickness, and from 100 to 150 feet broad, with nearly a corresponding interval of barren rock. These chimneys are inclined, having a dip to the north of about 30°. Although much valuable ore has been extracted, a map of the mine, showing its whole size and the excavations made, indicate that but a small portion is touched. There are 41 men employed in the mine, working eight hours each, at $4 per day, and keeping up the labor without intermission. The miners are usually natives of Cornwall, England. The hoisting of water and ore is done by steam power.

The Murphy mill, belonging to the Twin River Mining company, is a substantial structure of stone, having 20 stamps and corresponding machinery, driven by an engine of 95 horse-power. The ore is brought from the mine, a few hundred feet distant, in cars. The first process is to pass it through a Blake's rock breaker, which will in a few hours break sufficient rock into fragments of less than a cubic inch in size to supply the stamps 24 hours. This effects a saving of $2 per ton in the cost of crushing the ore. From the breaker the ore is placed upon a large pan or dryer, which is heated by the gases passing from the roasting furnaces to the smoke-stack, and is thoroughly dried. It is then ready for the stamps. Of these there are 20, weighing 850 pounds each, and they crush 16 tons per day fine enough to pass through a No. 60 screen, or a screen with 3,600 holes to the square inch. Falling from the screens into a tight bin, it is removed into cars standing on a track passing over the tops of the roasting furnaces, of which there are eight, capable of roasting 16 tons in 24 hours. Seven to nine hundred pounds of ore mixed with a certain quantity of salt, according to the composition of the ore, varying from eight to fifteen per cent., constitute a charge, and this is roasted from five to seven hours, being constantly stirred. It is then taken to the amalgamating room, in which are six pans, taking one ton of the roasted pulp, now mixed with water, at a charge. Here the silver, which in the furnaces was changed from its native condition to a chloride, is again changed to metallic silver, and is amalgamated with quicksilver. The pulp is agitated and ground by revoving iron mullers for about six hours, when it is drawn off into settlers, of which there are six, where more water is added, and, after several hours' agitation, the quicksilver bearing the silver is then is drawn off, the pulp allowed to run to waste, and the silver taken out. This, after being strained and pressed in leather bags, exhausting the quicksilver as far as possible, is placed in a close retort, and the remaining quicksilver expelled by heat. The crude bullion remaining is then taken to the smelting room, where it is melted and run into ingots, ready for the assayer and for commerce. The establishment is very complete, and presents an imposing appearance. The officers of the company having charge and carrying on the works, are R. B. Canfield, general agent; H. M. Grant, book-keeper; H. Richards, mining superintendent; Chas. V. Baesler, assayer; and Alonzo Moroe, engineeer. In working the mill at full capacity, 41 men are required. Besides those in the mine and mill are blacksmiths, ore assorters, and wood choppers, making 100 men employed. In one month 417 tons of ore were milled, producing $36,865. The assay of the ore was over $100 per ton. At the present date the mill is working to its full capacity, and better results than formerly are obtained.

CHARACTERISTIC TELEGRAPHY.

It should also be mentioned, as a characteristic illustration, that operators have an individuality of style or manner as distinctly marked as the differences in chirography. For example, a message is being received at the office in San Francisco from the office in Carson. The superintendent standing by, asks, "Who is that at the instrument at Carson?" The operator replies, "Jones is at it now. Thompson was at it a few minutes ago." Presently he adds, "Smith has it now." How does he know all this? Neither Jones, nor Smith, nor Thompson has mentioned his name, or said a word on his own account, and yet the fact of each change is perfectly clear to the operator at San Francisco. He knows the style of each man. One makes long dashes and quick dots; another runs a race between dots and dashes; the third is sharp, clear, and methodical. Each has his individual characteristics, which have become as familiar as the tones or modulations of his voice to the ear, or his handwriting or face to the eye. The language of sounds is even considered less liable to error in many offices than that of written signs, and has been of late very generally adopted.

LEGALIZATION OF TELEGRAPHIC MESSAGES.

The Legislature of California, by an act passed April 18, 1862, legalized messages transmitted by telegraph in their relation to instruments and acts of law. This act introduces a new feature in the business of telegraphing, a feature not only novel in its conception and application, but of incalculable importance to the civilized world.

Appropriate provision is made to secure the public against dishonesty and fraud on the part of the operators and other employees. Penalties are imposed for divulging the contents of messages, changing the sense or meaning, knowingly sending false or forged messages, appropriating information to private uses, wilfully neglecting to send messages, or postponing or sending them out of order. Also against fraud by any person whatsoever who may open seals of messages addressed to any other person, read dispatches by means of any machine or contrivance, bribe telegraph operators to divulge the contents of messages, damage the line, or otherwise attempt to cut off communication. But the great feature of the law is that contracts by telegraph are deemed to be contracts in writing, and the signatures thereto are valid in law. Notice by telegraph is actual notice. Power of attorney or other instrument in writing, duly acknowledged and certified so as to be entitled to record, may, together with certificate of acknowledgment, be sent by telegraph, and the telegraphic copy or duplicate has *prima facie* the same effect in all respects as the original. Checks, due bills, promissory notes, bills of exchange, and all orders and agreements for payment or delivery of money or other thing of value may be made or drawn by telegraph, with full force and effect as if written. Persons indicted on oath for, or accused of, any public offence, may be arrested and imprisoned upon warrant issued by any competent officer, properly indorsed and directed to such officer as may be legally authorized to make the arrest. Writs or orders in civil suits or proceeding may also be transmitted in the same way. All these provisions are carefully guarded so as to avoid any infringement upon individual rights, while they tend materially to promote the public convenience and welfare.

GOLD AND SILVER.

California.

Alpine County.—The *Miner*, May 9, says: Mr. J. Winchester, main owner of the Globe claim, on the Hercules lode, near Monitor, procured the services of B. Pilkington, Esq., and had a very accurate survey made of the mine and its surroundings. We had the pleasure of examining a topographical map of the work, and only wonder that all companies do not get a thoroughly digested plan of their properties, before expending too much money in running for, often they know not what.....Mr. N. Graff received this morning from the Merrimac company, of New York, a letter, accepting the proposition of the Winchester company, of Monitor, made some time since, to go into the Winchester tunnel and run it to the lode, and thence drift along the lode to their own ground, which is on the lode adjoining the Winchester. Authority is given Mr. Graff to let a contract, which, we understand, he intends to do immediately.....The I X L mine is now in condition, it is thought, to justify the erection of a small mill at the works, there being ore enough on hand and in sight to make it pay.....The same paper, May 2, says: Mount Bullion tunnel is now about 278 feet in length and going in at the rate of from twenty to twenty-five feet a week.....L. L. Lewis, Superintendent of the American Tunnel and Silver Mining company, has repaired the flume and set the pump agoing to drain the mine of the company. It is thought that something may turn up without a great deal of expense, to encourage the resumption of work and complete the opening of this mine.....All agree, who have seen the Morning Star mine since the strike in the lower levels, that it looks better than ever before. The ore is easier broken down than in the upper levels and can be mined to better advantage. A large body of fine ore is now in sight and being taken out.....The Pittsburg Tunnel company have cut another lode, and have a three foot vein of ore that looks like pay stuff. The company have telegraphed to purchase the Whiteside's mill at a certain price.....The Schenectady company, owning the Tarshish mine, owing to a disagreement among the members at the home office, will not be able to start up for some time.

Nevada County.—According to the *Transcript*, of May 12, W. C. Halston has sold a one-fortieth interest in the Eureka mine, Grass Valley, to Andrew J. Pope, for $20,000. At this rate the value of the mine would be $800,000. It was purchased several years ago from Fricot for $450,000.....Thos. Allen is working near Rock creek twelve men, and making from twelve to fifteen dollars per day to the hand.....The new sulphuret reduction works being erected by a French company at Canada Hill, are expected to be ready for work in ten days. It is estimated that their establishment cost at least $60,000, but even at that price, if it does what is claimed for it, it will be a good investment. Within the next month the new process will be tested.....The Grass Valley *National* is informed that the Illinois and Wisconsin company are taking out some very rich rock at the present time. The mine is now being worked under contract by a company of experienced miners.....The Hope gravel company have about completed their hoisting works, which they purchased of the Old Alta company and removed to their ground. By the middle of next week a 12-inch pump will be started with a sufficient power to raise water from the mine in immense volumes. .....A crushing of fifteen loads of quartz from the Inkerman mine has just been cleaned up at the Gold Hill mill. The yield was only $51 10 to the ton. The Grass Valley *Union* says the rock now coming out of the shaft looks as well, if not better, than that just crushed.....Within the last month, says the *Transcript*, we learn from the best sources, that the treasure yield of the county has considerably increased. A large number of claims which were shut down in consequence of the deep snows and heavy storms, are now being worked. The next five months will be the best of the mining season. The reduction of water rates by the South Yuba Canal company will induce many new companies to commence work, and encourage those now at work to continue. Every dollar saved by the reduction will be a clear gain to miners and a benefit to the mining interests of the county. This winter the snows in the mountains are unusually deep, and as a consequence the reservoirs and ditches will be kept full until very late in the season.

Kern County.—The quartz mining interest of Kern County presents a more flattering prospect than they ever have at any time since the discovery of quartz within its borders. The Havilah *Courier*, April 25, says of the St. John mine at Sageland, which is one of the most productive quartz mines in California: Since the mill began to crush quartz, with the exception of about six weeks stoppage for repairs, the mill has been turning out from $3,000 to $5,000 per week. On the 6th of the present month, Superintendent Taylor made one shipment of 112 lbs. of bullion, the result of two week's run.....The Burning Moscow mine, situated in the New El Dorado district, is now being worked with energy by its present owners, Messrs. Hammel & Denker. They are at present running a tunnel from which they take on an average 15 tons of rock per day, which prospects from $50 to $70 per ton.....In addition to the St. John 12-stamp, and Dockweiler & Co.'s 5-stamp mill at Sageland, there are one or two other quartz mills in process of construction in that rich auriferous district. Rodgers, Keeney & Bridger are pushing their 10-stamp mill to completion with energy, and within a very short time they will be crushing rock from their mine—the Gold Hill lode. This is probably one of the most extensive and richest lodes in the county. The Gold Hill Co.'s mill will probably be in running order by the 1st of May. We also learn that Stearns, Low & Co. are preparing to erect a 10-stamp mill on the Esperanza lode, in Kelso Valley. This lode is a recent discovery, but it is said by judges to be immensely rich.

Trinity County.—We hear most flattering accounts from the various mining districts of this county. The *Journal*, May 2, says: Although the long tedious winter delayed the commencement of mining operations nearly two months, the lost time will be regained, for water will hold out much longer than in ordinary seasons; and, generally speaking, more can be accomplished in one long summer day at mining than two of the winter season. Never since the settlement of this county by Americans did high mountains hold such a covering of snow on May-day as now. These are the fountains from which the miner receives the needed element for successfully prosecuting his avocation. Several new mining enterprises, commenced last year, now completed, will add largely to the gold yield of the present season. The ditch of Taylor & Frey, from Grass Valley creek, extended a mile further, will cover a range of diggings known to be rich. The claims in Laing gulch, one mile below Lowden's, have heretofore yielded many a handsome nugget for trifling work done with a small supply of water. The ditch will be in operation soon, and furnishes water for the entire year. The Weaver Creek Fluming company have commenced operations. The work of laying the flume will commence as soon as the water falls sufficiently to permit it. This is one of the most extensive mining undertakings ever inaugurated in the county. Henry C. Wilt, who located the claim under the McGillvary ditch, says that the prospects in that new mining locality are very cheering.

Tuolumne County.—The Garner mine is looking well. A well defined vein from three to four feet thick, and of very rich rock, has been struck on the north side of the river. The mill is about finished, and is splendid as regards water power advantages.....The bed of Rattlesnake creek, between Kirkwood's and Oak Flat, is being worked by Lewis Smith & Co., who are making good wages. It has been worked ten or twelve times before, always paying well. It is a sort of natural bedrock flume, and will continue to pay yearly as long as there is any mining done at Big Oak Flat.....At Deer Flat, one mile from Big Oak Flat, there is a little placer mining being done.....Mr. Snow has leased his partner's interest in the Cosmopolite mine, and is working the mine on his own account.....Mr. Hiskey, of Nevada, has agreed with P. M. Bacon, to take the Old Star mine near American camp, and prospect it till June, and if he finds the lead extensive enough, to lease the same and give bonds to pay Mr. B. eighty per cent., fire assay, of all gold trken out. me of the rock assays as high as $5,000.

Sierra County.—Owing to the unusually long winter, provisions became scarce in Alleghany and other parts of the county. Some miners in the out-of-the-way camps have been obliged to quit work for want of "grub." Some of the citizens of Alleghany were obliged to pack their provisions from Forest City, where the stock was becoming scarce. We learn that several teams are on their way up with food for that market.....The Union claim at Gibsonville is said to be paying splendidly. For one week's work it divided $150 to the share in profits.

Calaveras County.—Brackett & Co. have got their new mill fairly to work, pounding gravel from their claim in Chili Ridge. It contains a battery of five stamps, propelled by means of a hurdy-gurdy wheel, with 250 feet fall for the water. The mill works well in every part .....Some magnificent gold-bearing quartz rock, from Washington district, was shown to the Editor of the San Andreas *Register*. It was from Smith's mine.

Inyo County.—A Mr. Piña has written from Owen's River to his friends in Los Angeles, advising them to emigrate to that locality immediately, as very rich gold quartz mines have just been discovered there. A party is reported to have cleaned up in one week's run of an arastra, $4,000. Information in regard to the existence of the gold was obtained from an Indian, who was given 300 pounds of hard bread.

Napa County.—The *Register* says: We have been shown some very fine specimens of cinnabar, brought from the Star Co.'s claim at Pine Flat, near the Sonoma county line, by R. T. Montgomery, which compare favorably with the best we have ever seen. Prospectors have been at work for several weeks, and recent developments leave little room to doubt that a well-defined ledge of ore has been struck.

San Bernardino.—The *Guardian*, of May 2 is informed that there are about forty miners at work in the placer diggings in Holcomb Valley, and are realizing from two to six dollars a day. Water is in abundance for all mining purposes; game is found in the hills skirting the valley, and plenty of fish can be had at the head of the Santa Anna river. The indications are favorable for a very prosperous season.

Amador County.—The owners of the Kennedy mine, near Jackson, have decided to erect a twenty stamp mill near their shaft. Work will be commenced on it immediately.....There are five quartz mills running, 120 stamps, in the immediate vicinity of Jackson. A little more than two years ago there was but one quartz mill, with twenty stamps.

Placer County.—Preparations are being made to resume operations on the Dutch Flat shaft.....Kidder & Co. are now engaged building a new telegraph, and extending their pipe, in order to enable them to obtain the pressure necessary to work their claims in a still more advantageous manner.

Montana.

A correspondent writes in the *Post* to give the public a correct statement of Mr. Esler's operations. He says: "It is now well known to the public that Mr. Esler has failed so far as his business affairs are concerned, and has had considerable difficulty with his employes. The impression may perhaps go abroad that the furnace is a failure. Such is not the case, and it is now my object to disabuse the public mind, and put the Esler Argenta affair in its proper light. In the first place, Mr. Esler commenced this furnace in the early part of winter, when it cost him about one-third more to get the material on the ground and to build the furnace than it would have cost at a more favorable season, and without sufficient capital. He was so sanguine of success that he expected in a short time after the furnace would commence operations that he would be able to liquidate all debts; and so he would, had it not been that old debts and unlooked for difficulties came against him. Huge lumps, lump after lump, of silver went to Virginia and were in turn gobbled up by hungry creditors till the patience of his hands was exhausted and there was a general revolt; and the last cupell was seized upon by the employes and divided *pro rata* among them. And just here is an item worthy of note: That division paid 55½ per cent. of all the arrearages for wages to the employes. The feeling became so intense against Mr. Esler that he sold the furnace to Capt. Guyer and left on a prospecting tour with barely a sufficient outfit. Mr. Guyer proposes to run the furnace, but up to the present writing has been unable to procure a smelter and other necessary help. These requisites will, however, soon be obtained. Now let us see whether Mr. Esler's furnace has been a success. He erected two smelting furnaces and one cupell under the same roof, at a cost of $7,000. The cost of running them for seventy-five days was $4,000, or including a large supply of coal on hand, and held over, $5,000. During that time he took out $14,000 worth of silver bullion, besides a large lot of lead, some of which is yet rich in silver, so that the cost of building and running the furnace for seventy-five days was about $12,000, paying for itself and all costs of running it, leaving a nett profit of $2,000. Leaving out the cost of building there is a profit of at least $8,000. These are not the exact figures for we have used round numbers, but if any one desires the exact figures we are prepared to give them. We have our information from various reliable sources, all agreeing, but when called upon we will give Mr. Fred Hollers, the head smelter, for authority, who has been with Mr. Esler from the time he began the furnace till he started out prospecting. Mr. Hollers has kept a strict account of all the expenses of building, running the furnace and of the amount of bullion taken out, and his statements are in substance as above, and can be relied on. His failure, if indeed it can be termed a failure, is attributable to those creditors who closed in on him when he was achieving success. Mr. E. was working out successfully for us one of the greatest problems of our quartz country, and we think the pressure was ill-timed, and prejudicial to the best interests of all concerned. He did not fail, however, in achieving for the country a glorious result. He proved that men of small means can build furnaces and make them a success, and we must call him a public benefactor, and believe that he will yet rise above these difficulties. We hope so at least. We might mention an almost similar affair that was attempted on Col. N. E. Wood, at Bannack. He has been persevering against all difficulties and discouragements. Two attachment suits were commenced against him, but the Colonel could not be put down. He cleaned up last week over $2,000 worth of gold bullion, and settled up the suits, the parties paying all costs. He had once concluded to wind up, but better determination prevailed and he is going on, and will be triumphant. It will not be another month before Col. Wood will have paid up thousands of dollars of old company debts, and stand free and independent before the community. With ordinary luck his little mill will average $2,000 per week, at a cost of not over $400 or $500.

A correspondent writing from Silver Star District, May 15th, says: Bates & Trivit's mill is now crushing rock from their claims on the Iron Rod lode with splendid results, as the big, bright buttons of retort testify. They are down on the discovery claim 70 feet, with a four foot crevice of rich ore. In the shaft on the west end of the lode a "horse" was encountered which nearly closed the crevice for a time; but now, at a depth of 104 feet, it has opened out to three of quartz. Around and near the Iron Rod are numerous other lodes, prospecting well, but poorly developed as yet. About half a mile north from the Iron Rod is the Toland (silver) lode, with one shaft of 150 feet, and another of 75 feet in depth. The crevice varies in width from one to two and a half feet, of splendid looking ore, some of which assays as high as $800 per ton. Mr. T. Salisbury, superintendent of the mine, sent several tons of the rock to Argenta a few days ago to

have it tested by furnace. The return is anxiously looked for. Half a mile north again is the Governor Chase lode, also silver, some of the rocks prospecting well in gold. There is a twelve foot shaft on the lode, which discloses a four foot crevice filled with beautiful ore, containing some galena, and from which silver can be smelted by a common fire. Three hundred yards further on, and opposite the Governor Chase, is the discovery shaft on the Philadelphia lode. Its depth is 25 feet, and shows a crevice of three feet, containing a goodly amount of very rich rock. A mile more and you come to the celebrated Green Campbell lode, with an 80 foot shaft and 6 to 10 foot crevice of rock, which averages $40 per ton in the two arastras that are now running night and day, and I suppose will continue to do so till the advent of a mill gives them their quietus. The Butte, the Victoria, the Tom Benton, and the Broadway are all fair prospecting lodes, with crevices varying from 8 to 20 feet in width. The latter lode was discovered some two years ago by Mr. J. C. Taylor, who sold to Clarke & Kirby and the late John S. Rockfellow. Clarke & Kirby intend putting a mill on it this season. The crevice, which is 10 feet wide, contains a great deal of rich dirt and quartz. Mr. Taylor has lately made an extension on the Broadway, east, that bids fair to equal it in width and richness. Nearly every lode in this district that is developed to any extent has proven better as the prospector descends on it.

A correspondent writes from the Crow Creek mines: The quartz mines in the vicinity of Radersburg are made up of 28 ledges, discovered by six different prospecting parties, the first lode having been discovered by J. A. Cooper and George Beard, on the 12th day of June, 1866, and named the "Blipp." Among the principal ledges, the Leviathan, Johnny Keating, Twilight, Night Hawk, Ulta, Marine, Ohio, Iron Clad, and Robert E. Lee. All have heard of the surprising richness of the Leviathan lead, discovered but a short time since by Messrs. Blacher, Oldman and Keating. Five hundred dollars has been found in one pan full of its rock, and some of the most beautiful free gold specimens ever found in the Territory have been taken out. The crevice is from six to twelve inches in width, and a shaft is now being sunk for the purpose of fully testing and developing the lead. The Twilight is also a fine lead, its rock having paid $40 to the ton in an arastra, until a depth of 20 feet was attained, when the lead capped. The R. E. Lee has paid, on average rock, $23 60 to the ton. Upon the Ohio, an incline 40 feet in length has been run, at the end of which the ledge is four feet in width, and is almost completely filled with sulphurets of iron. It has "panned out" $40 to the ton. The Keating lode is one of the best in the district, and has a shaft sunk upon it to the depth of 95 feet, and a tunnel 200 feet in length, for the purpose of draining off the water which has become troublesome. We understand that it is in contemplation to erect a mill on one of the ledges above mentioned at no distant day. Another correspondent writes of the Placer mines: They lay no claims to being "big," but content themselves with yielding from $8 to $20 per day to the hand. The three ditches cannot begin to supply water to all the diggings. Potter completed his ditch last week. It is about seven miles in length and will carry 1,000 inches of water. Another ditch brings 500 inches of water to the mines, while a third supplies 300 inches. There are many rich bars in the vicinity, some of which will prospect from 25 cents to $1 50 to the pan. Some of the quartz in this vicinity will also compare favorably with any in the Territory. A shaft, 27 feet in depth, has been sunk on the celebrated Leviathan lead, showing a crevice three feet and six inches in width. No more rich pockets have been found, but still the rock is of an excellent quality. The Radersburg people are all in good spirits, and believe that their camp will before July be the liveliest in the Territory, if, indeed, it is not already. Some claims which are paying from $10 to $12 per day to the hand, would readily pay $30 with a sufficient supply of water. .....A correspondent writes from Diamond City that during a ten hours run McGregor, Thomas & Co. cleaned up from their claim in Confederate Gulch over eighteen hundred dollars in clean, coarse gold. This amount, he continues, was taken out by only five drifters from two sets of timbers—that is, from a space of ground twenty feet long and three and a half feet wide. The entire amount of dirt from which this gold was washed did not exceed seventy cubic feet. This is the largest run from unselected, average dirt yet made in the main channel of Confederate Gulch.....Hon. N. C. Boswell, of Reynolds City, reports that the mines in the immediate vicinity of that place are as productive this season as they have been at any time since their discovery. He reports nine bed rock flumes in operation or in course of construction in Elk creek, all of which, except two, are on bed rock, and are doing well, producing for their owners from an ounce to fifty dollars a day to the hand. The supply of water in Elk creek is abundant, and there is no apprehension of having to suspend work during the summer. The mines at Bilk and Billy Weasel gulches will produce a large amount of gold this season. Ditches are constructed from Big Weasel to these gulches, and there will be no lack of water for mining purposes. The *Post*, May 29, rejoices at having seen nearly one hundred and fifty pounds of pure gold, in huge blocks, the product of Montana mining. It says: The First National Bank on Wednesday cast gold bars, which weighed 1,682 oz., of the value of thirty-one thousand and forty-seven dollars in gold coin, equivalent to forty-five thousand dollars in currency. We agree with the *Post* that such substantial evidences make the reader feel very kindly towards Montana.

New Mexico.

The Santa Fe *Gazette*, May 9, says: We were shown on Monday of this week, by Maj. Magruder, two nuggets of gold of large size, which he brought from the Placer mines for shipment to the east. About ten days since he made another shipment of a nugget of half the value of the two of which we now speak. The result of sixteen days' run of the mill at these mines has been between twenty-three hundred and twenty-five hundred dollars, or about one hundredand fifty dollars a day. This is a good yield considering the imperfection that is said to exist in the machinery now used by the company. Upon the erection of another mill, the machinery of which is already at hand, it is confidently anticipated that the yield of gold will be sufficiently large to be exceedingly remunerative to the company, and that the product will thenceforth be permanent. C. E. Cooley, Esq., of Tuerto or New Placeres mines was also in the city on Monday. He had with him specimens of gold from these mines. The only machinery in use there as yet for crushing the quartz is the arastra, which is exceedingly primitive in comparison with the quartz mills of modern invention. It, however, answers the purpose for which Mr. Cooley intended the one he put up, and that is, to test the value of the ore. We are assured that the tests which have been made are entirely satisfactory and prove the ore to be of great richness. There is on this claim a smelting furnace for reducing copper. The furnace is said to operate well and turn out large quantities of copper daily. Gulch mining is now being carried on quite extensively and profitably on the Tuerte grant. Several experienced miners from Arizona are employed there in this kind of mining, and, we ard told, are making good wages, notwithstanding the scarcity of water. Capt. Santiago L. Hubbell, who was in the city last week, informs us that several claims have been taken up on the Magdalena mountains, a few miles west of the town of Socorro, in Socorro county, and companies organized to work the claims. These ores are of gold, silver and copper. The specimens which the Captain had with him were apparently very rich, and we have no doubt will prove to be so when they shall have been fairly put to the test. It is claimed that these ores will pay from six to eight hundred dollars per ton. In consequence of the snow work has not yet begun at the Moreno mines, but there is a large number of men—several thousand—waiting for the opening of the season to commence operating claims already opened and to prospect for new ones. We mentioned two weeks ago the fact that M. Rosenbaum, of La Messilla, had passed through this city for the east, taking with him fifty pounds of gold from the Pinos Altos mines. Altogether we regard our mining prospects for this season as by one hundred per cent. more promising than they have ever been before, and a continued application of intelligent industry and of capital will in a few years place us in the foremost rank of all the mining districts in the country.

Illinois.

It is remarkable how much the spirits of the departed are interested in the treasures of this world. It would almost appear as though, having neglected to lay up treasures in heaven, they desired to be instrumental in laying them up on earth. We, not long ago, had to chronicle an attempt at spiritual mining for buried Spanish treasure in Connecticut, and now it becomes our duty, as recorders of the events of the day in mining, to give place to an account of "an excitement akin to the gold fever excitement about California years ago" which has been for some time disturbing the rural district of Calhouncounty, in the State of Illinois. The Jacksonville *Journal* says: "Parties are busily engaged in the Silver creek and Panther creek digging for fabulous quantities of gold said to have been buried in that neighborhood many years ago by the tribe of Indians who lived there on the eve of their departure to the far West. Hunting and fishing parties of the same tribe of Indians have, for the past two winters, camped near the spots where the treasures are said to be buried, and these spirits avow that they have succeeded in finding the treasure, but a number of reliable Boston spiritual mediums, having been applied to by interested parties, state, on the honor of a 'spirit,' that the Indians lie about it, and that the treasure is still buried in the deep bosom of the earth. While the question of the veracity is being discussed between the red spirits and the white spirits with great bitterness, the Calhounites are attempting to solve this Gordian knot by means of spades and pickaxes, with what success we have not been able to learn."

Minnesota.

Col. Tindall on the Vermillion Mines.

EDITOR OF THE AMERICAN JOURNAL OF MINING:

SUPERIOR CITY, WIS., June 8, 1868.

I have just read a statement in your paper, of May 20, copied from the *Superior Gazette*, in regard to the large yield of gold and silver taken from ore at Vermillion Lake. I will here state that there is not one line of it which is not a misstatement and exaggeration.

The largest yield of metal taken from sample ore, at Vermillion, was $150 per ton; all other ores tested by me yielded from $10 to $100 per ton. The ores are all sulphurets, no free gold or silver has been discovered in that district as yet, and there is no chance for making money there except by the outlay of capital, and any rush to that region would be the height of folly.

Please publish this in your valuable paper, as it may prevent many persons from losing who are not able to spend money in such a risky businesss, who might be induced to do so by flaring accounts published in newspapers. Yours, etc.,

H. TINDALL.

Dakota.

The Sweetwater *Mines* has the following items: An extensive salt spring has been discovered at a point some ten miles distant from South Pass City, one capable of furnishing large quantities of the indispensable article. .....A party of twenty persons have arrived from Cheyenne, and among them we notice the name of the following gentlemen: John Morris, Harvey Willis, John Churchill and E. A. Slack. They were about 20 days on the road, and had a very pleasant trip generally. No Indians, or sign of them, were seen. The entire outfit are in good health and spirits.....There is no mining news of any importance in the *Mines*.

Oregon.

The Corvallis *Gazette*, of April 4th, says that the Nehalem Coal company have made valuable discoveries of coal at Nehalem river, some seven and a half miles from the mouth of the river. Specimens of this coal having been sent to San Francisco, it is found to rank high as to quality, and appearances indicate large quantities. The articles of incorporation have been filed with the Secretary of State, and arrangements for working the mines, completed. F. A. Chenoworth is President, and A. Sharples Secretary of the company.

Mexico.

A correspondent of the San Francisco *Bulletin* writes from Acapulco: A Scientific Commission has been engaged for a couple of months in surveying the road between this city and Mexico, a road which after having carried Mexican specie to the galeones of the Manila trade, and the riches of East India to the wealthy Spaniards residing in Mexico, has been permitted to become almost intransitable, while enormous blocks of granite, serpentine and sandstone are lying along the road since 1820, intended to be used in the construction of bridges across the Rios Mescala and Papagayo. The report of the above commission makes it likely that the old road from here to the Rio Balzas will be abandoned, because a much better one has been discovered from the Farellon Mountain (distant one league from here) to the Hacienda de Buenavista (32 leagues), via Jaltianquis, passing the Peregreno river at a point called Puenta Viejo, or old bridge. Old Gen. Bravo in 1843, and Gen. Alvarez in 1856, made Acapulco a port of deposit, and set money aside for repairing this old Spanish road, but since then nothing has been done, and we have even lost those mercantile privileges we used to enjoy. Of more vital importance for the whole country is the new plan to open the River Mescala to navigation from its mouth to Las Balzas, which name it takes when increased in volume by several tributaries. The sources of the Mescala are in Tlascala, where the river is called Atoyac, and crossing the States of Puebla, Mexico, Guerrero, and Michoacan, its whole length is 181¼ leagues of 5,000 Spanish varas. The river has no serious obstructions, only rapids, which can easily be removed by the blasting of a few rocks, and though Zacatula, at its mouth, is but an indifferent port, on account of the shifting sandbanks, Petacalco can be easily made a place of secure anchorage for all vessels trading in those regions by digging a canal through the delta, and thus opening the interior of the above States to the outside world. Besides the great variety of precious timber and dye woods growing on both sides of the river, the mineral wealth of those parts is really fabulous, and I think it will interest your readers if I mention a few of its mining districts: Near Tlalcozotitlan there is a sulphur and an ochre mine; the Cerro del Limon abounds in silver, lead, and iron; the district of Guadalupe and Tepantitlan are famous for their gold, copper, and silver mines, that of Santa Barbara having given 13 marks per carga; in the Cerra de Huamuchil cinnabar has been found as abundant and rich as that of Almaden, and the mining districts of Acuchitlan, Coyuca, and Zirandaro are as famous for gold and silver as the neighborhood of Pinzandaran for its copper veins, which yield 50 per cent. of pure metal, while the El Gallo mines have yielded silver in profusion. All these rich minerates, which used to contain thousands of industrious miners, are now mostly deserted, because mining requires peace as well as other industries. I have always been astonished that none of your enterprising merchants has ever thought of taking this important matter in hand, get a monopoly from the Government for establishing a steam line up and down the river, and thus open first rate returns to your mercantile fleet, besides new markets for your home industry.

Canada.

The news from the Madoc mines to the 6th inst., as chronicled in the *Mercury*, is as follows: The firm of Daniels, Scott & Taylor have dissolved partnership, and their mill at Eldorado has been sold to the Merchants' Union company, and is shortly to be removed to Madoc. Mr. Taylor has resigned his position as manager at the Richardson mine, where operations are suspended for the present, the workmen being paid off and discharged. Some tons of their ore have been sent to the Bay State mill, to bs tested there by the process adopted by Dr. Otway. The results of the practical working of this system are awaited with great interest and much confidence by many, who believe that his method of treatment will turn out to be best suited to the reduction of the ores of this district, which so far have been too refractory to yield, at the other mills, a sufficient satisfactory approach to the returns obtained from the more careful assays upon a smaller scale. At the Barry mine mill, work is also suspended at present, the machinery having proved to be defective. It is expected that stamps will have to be substituted for the grinding process which was adopted there in the first instance ..... Gold has been found on lot No. 6 in the second concession of Elzevir. Ten acres on the lot at a distance of about half a mile northwest from the Barry mine have been purchased from Mr. Barry by Messrs. Coe & McPherson, who have commenced to prospect, and have been rewarded by finding some very satisfactory "shows."..... The Union mining company, of Toronto, who own a portion of the Moore farm, have now advanced their tunnel about sixty feet into the hill, and have come across two very promising veins of gold-bearing quartz, considerably mixed up with copper. The character of the rock, for the last twenty feet, has considerably changed, bearing strong mineral indications, and some of the ore now being got out will be sent to the Bay State Mill to be tested by Dr. Otway. A new contract has just been let by the managing director, Mr. T. S. Chandler, and work will continue to be carried on day and night.

COPPER.

Michigan.

Notwithstanding the unprecedented depression of copper mining interests on Lake Superior, there is a scarcity of laborers in the three copper districts. The Portage Lake *Gazette* of the 4th inst. says: "In this district our mining men experience some difficulty in obtaining men, even at an advance of several dollars per month over last winter's prices. The men employed at the Franklin struck for higher wages this week, but the company persistently refused to grant an advance on the prices they had been paying, and the men are now again at work at the old rates. A strike is also reported at the Calumet and Hecla; what the result has been we have not learned. The mines that have paid and are paying currency and sight drafts, command laborers more readily and at cheaper rates. The prices paid surface laborers ranges from $36 to $42 per month." From the same paper we learn that the Holyoke Mining company are still extending their openings with a small force. The directors lately called in an installment of $1 per share, and are determined to thoroughly examine their valuable property.... The Isle Royale at present employs but a small force, and it is the intention of the management to still further reduce the force by stopping the stamp mill as soon as the supply of rock now on hand is stamped. Their force is and will be employed in extending the openings in the mine.....The product of the Calumet mine for the month of May is reported to be 123 tons stamp, and 12 tons barrel work.....The actual running time at the Hecla stamp mill during the month of May was 17 days 10 hours, and produced 157 tons stamp material. The product of barrel copper is reported to be 7 tons.....The following products for May are reported: Franklin mine.—Mass, barrel and stamp, 80 tons, 523 lbs. Quincy mine.—Stamps, 61 tons, 524 lbs.; mass, 4 tons, 1,614 lbs.; total, 66 tons, 524 lbs. Pewabic.—Mass, barrel and stamp, 57 tons, 676 lbs. Ogima mine.—Mass 1 ton, 320 lbs.; barrel, 3 tons, 834 lbs; stamp, 8 tons, 766 lbs total, 12 tons, 1,920 lbs.: Knowlton mine.—barrel, 4 tons, 830 lbs.; stamps, 10 tons, 1,074 lbs; total, 15 tons, 404 lbs.; Evergreen bluff.—Mass, 5 tons, 980 lbs.; barrel, 11 tons, 1,290 lbs.; stamp, 10 tons, 1,160 lbs.; total, 27 tons, 1,340 lbs.; Hancock mine.—Barrel, 4 tons, 1,950 lbs.; stamps, 16 tons, 1,780 lbs.; total, 21 tons, 1.780 lbs. Hoag & Brothers.—Stamps, 19 tons, 1,488. lbs.....From the Ontonagon *Miner*, of the 6th inst., we learn that the Minnesota mine is developing in the workings on the South Bluff a most excellent vein, heavily charged with copper We also learn that the National continues to produce mass copper in quantities. The stamp mill is in full operation, and it is thought that the product will run close on to 40 tons, with less than fifty miners.

Arizona.

The *Miner*, May 2, fears that although the copper mines near Aubry City, Williams' Fork, are producing rich ore, that work will have to stop entirely, or be greatly retarded, owing to the hostile attitude of the Indians of that region.

Newfoundland.

In his annual report to the Colonial Office, the Governor of Newfoundland says: "In the past year the exportation of copper ore of a very superior quality was commenced, and at this time more than 2,000 tons have been shipped. On my recent visit to Labrador and parts of the north-east coast of Newfoundland, I stopped at Tilt Cove, in Notre Dame Bay, for the purpose of seeing a mine, which is now in most successful operation, and which I trust is only the first of many which will soon be worked with profit to the proprietors and great advantage to the population, in affording new employment, which is often so sorely needed in the winter season. I was much interested in what I witnessed. The quality of ore is said to be equal to the best known from any other place. The fine kinds are worth as much as £20 per ton, and the average value of the sales of shipments to England is equal to about £10 per ton. Before the end of this year it is expected that a quantity worth from £30,000 to £100,000 will be shipped, and the ore now being extracted is even better than that first obtained. One hundred and seventy men and boys are on the time list, and about 500 people altogether now reside at the settlement, which was not in existence three years ago. Some of the men make as much as £17 per month, the average being from £10 to £12. Seventeen of the men employed, including the captain of the mine, are Cornish miners, but the remainder are Newfoundlanders. I spoke to several, and found them well pleased with their position and circumstances, which are, indeed, greatly preferable to those in which they had frequently been placed in seasons when the fishery had been unsuccessful, and their subsistence depended wholly on its result. If, as I believe will be the case in a very short time, many other mines equally productive should be worked, it will scarcely be possible to over-value the beneficial effect of this new industry upon the circumstances of the laboring population."

MARKET REVIEW.

FRIDAY EVENING, June 19, 1868.

Gold and Silver Stocks.—Colorado stocks continue to advance in price, one or two kinds excepted, but the transactions are limited. Nevada stocks are somewhat depressed; want of confidence exists in Twin River, which, although reported to be held to-day at $50, is said to have been freely offered, early in the week, at $25, with no buyers. The market in mining stocks generally is moderately active, with, however, but few bona fide transactions. Prices are quoted to-day as follows:

	Bid.	Asked.		Bid.	Asked.
Alameda Silver	60	— 90	Kipp & Buell Gold	— —	— 15
American Flag	— 40	— 60	Keystone Silver	— 1	— 2
Atlantic and Pacific	— —	— 75	La Crosse Gold	— 43	45
Bates & Baxter Gold	— 25	— 50	Liberty Gold	— 5	— 6
Benton Gold	— 32	— 50	Liebig	— —	— 4
Black Hawk G	6 00	7 25	Manhattan Silver	— —	140 00
Bobtail Gold	1 00	1 30	Midas Silver	— 26	— 30
Bullion Consolidated	— 60	— —	Montana Gold	— —	— 57
Burroughs G	— 8	— 12	New York	— 76	78
Columbian G. & S.	— 4	— 10	New York & Eld'o	— —	1 75
Combination Silver	— —	45 00	Nye Gold	— —	— 3
Consolidated Gregory	5 15	5 20	Ouray Mining	15 00	30 00
Corydon Gold	— 33	— 40	Con. Colorado	10	— —
Edgehill Mining	3 80	3 90	People's G. & S. of Cal	— 5	— 15
Empire G	2 45	2 60	Quartz Hill	1 15	1 25
Gold Hill	— —	1 00	Reynolds Gold	— —	— 4
Grass Valley	— 10	— 25	Rocky Mountain Gold	— 15	— 21
Gunnell Gold	— 60	— 90	Smith & Parmelee Gold	3 60	3 80
Gunnell Union	— —	— 60	Sensenderfer	— —	10 00
Hale & N. bs	— —	— 88	Symonds Fork Gold	— —	1 00
Harmon G. & S. bs	— —	3 00	Texas Gold	— —	— 12
Holman	— 4	— 10	Twin River Sil	— —	50 00
Hope Gold	— —	— 20	Vanderburg G	— —	— 70

Copper Stocks.—Davidson continues on the upward course, and to-day, according to report, holders were asking 75 cts. Quotations range:

Caledonia C	— —	5 00	Gardiner Hill — — 1 00
Canada	— —	— 50	Hancock C — — 5 00
Quarter Oak	— —	1 00	Hilton — 50 1 00
Copper Falls	22 00	— —	Isle Royale — — 4 00
Davidson	— 65	— 75	Knowlton — — 2 00
Evergreen B	— —	10 00	Minnesota — — 4 00
Franklin C	14 50	— —	Ogima 4 00 6 00
French Creek	— 10	— 15	Rockland — — 2 00

Petroleum Stocks.—Sales of Rynd Farm are reported to-day at 12@15c.; United States at $2, and Pithole Creek at 90c. Prices range:

	Bid.	Ask'd.		Bid.	Askd'.
Bennehoff Run	1 00	1 25	N. Y. and Alleghany	....	2 10
Brevoort	....	50	Pit Hole Creek	85	....
Buchanan Farm	47	48	Rynd Farm	14	15
Central	25	50	Second National	....	20
Continental	1 10	....	Sherman & B	50	....
Empire & Pithole	....	10	Southard Pet	....	....
Home	15	....	United Pet. Farms	5	12
Manhattan	....	10	Union	4 00	....
National	....	3 00	United States	2 00	2 10

Miscellaneous Stocks.—Delaware, Lack. & W. R.R., 1st m., 98; Mariposa Mining, pref., 9½; Canton Co., 49@50; Quicksilver, 25½@25⅞; Wells, Fargo & Co., 26½@27; Adams, 55@55¼; American, 50½@51; United States, 52; Merchants' Union, 27¼@27½; Pacific, 97¼@97⅞; Western Union Tel., 37½@37⅝; New York Central, 134¼@134¾; Erie, 69¼@62¾; Hudson River, 140@141; Reading, 100½@100¾; Walkill Lead, 16@19; Tudor Lead, $2 05@2 10; Rutland Marble, $17.

Government Stocks.—The market is quite active, and prices are firm at the following rates:

U. S. 6s, 1881, coupon ..... 117⅛@117¼
U. S. 5-20s, 1862, coupon ..... 113½@113¾
U. S. 5-20s, 1864, coupon ..... 110⅜@110⅞
U. S. 5-20s, 1865, coupon ..... 111 @111½
U. S. 5-20s, July, 1865, coupon ..... 113⅜@113⅝
U. S. 5-20s, July, 1867, coupon ..... 113⅜@114
U. S. 5-20s, July, 1868, coupon ..... 109⅛@109¾
U. S. 10-40s, coupon ..... 106⅛@106½
U. S. 7-30s, July, large ..... 109⅛@109¾

Foreign Exchange is somewhat active, and rates are steady at the following figures:

London, (prime bankers')60 days' ..... 110 @110½
London, (prime bankers') sight ..... 110⅜@110½
London, prime commercial ..... — @ —
Paris, (bankers') long ..... 5.13¾@5.12½
Paris, (bankers') short ..... 5.11¼@5.10
Antwerp ..... 5.16¼@5.13¾
Swiss ..... 5.16¼@5.13¼
Hamburg (bankers') ..... 36⅛@36⅜
Amsterdam (bankers') ..... 41¼@41¼
Frankfort (bankers') ..... 41⅛@41
Bremen (bankers) ..... 79⅜@79¾
Berlin (bankers) ..... 71¾@72¾

Gold opened to-day at 140½, and closed at 140¼.

American silver is in moderate request at 6¼@7¼c. below the price of gold, and Mexican dollars at 103¼@103¾ in gold.

The money market shows no change from the late extreme ease. The banks perhaps show less anxiety to put out balances, but borrowers of good standing find no difficulty in supplying their wants at 3@4 per cent.

Discounts of prime commercial paper are done at 4½@6 per cent.

The exports of specie from the port of New York for the week ending June 13 were:

Total for the week $2,967,321
Previously reported 40,735,306
Total since January 1, 1868 ..... $43,702,627

Copper has been very dull. Forced sales to the extent of three to four hundred pounds Lake Copper have been made at 23c. and a shade below, but it is difficult to buy at this price. Baltimore is nominal at 23c.

The English market is quiet at £76 10s. for Chili pig.

Tin entirely nominal at 24c. gold for Straits, 27¼c. for Banca, and 24½c. for English.

The London market is dull at £91 10s. for Straits.

Spelter unchanged. Nominal quotations for Silesian 6¼@6½c. gold.

Lead is dull; 100 tons ordinary Spanish sold at 6½c. gold.

Petroleum—Is quiet at 16 cents for crude, and 32 cents for refined, in bond.

The following tables show the amount received and exported to June 16 since Jan. 1:

Received since January 1—			
1868		bbls.	390 883
1867		do.	458,662
Export since January 1—		1868.	1867.
From New York	galls.	20,565,286	13,333,731
Other ports	do.	16,231,253	12,077,958
Total	galls.	36,793,839	25,411,689
Same time, 1866	galls.		22,796,535
" " 1865	do.		4,662,278

THE IRON TRADE.

NEW YORK, Friday evening, June 19, 1868.

Scotch pig iron is in moderate demand, and prices a shade lower. We note sales 355 tons Coltness at $41; 350 do. Glengarnock, $38 50@39 50; 100 do. Summerlee, $39, all ex ship; and 4@500 do. in lots from yards, at $40 for Eglinton, and $42 for Gartsherrie. American pig iron is in moderate request. Since last report the sales have been about 700 tons at $38 for Allentown; 500 tons Grey Forge, at $34. Old rails are in good demand, and prices are high. All the surplus stock on the other side has been worked off, and the supply here is very meagre. Sales of double headed rails were made at $48@50. In scrap the sales foot up about 200 tons from vessel and ships, at 45 for ship. Bar, from store, continues inactive, and prices are nominally unchanged—a sale of 50 tons Belgian refined, No. 3, sold ex ship at $81, cash.

BOSTON, June 17, 1868.

There is a steady demand for Scotch pig iron, with sales at $42@44 per ton for Gartsherrie and other brands No. 1. The demand for American pig is also steady, and sales have been made at $40@45 per ton. Bar iron is firm, and has been in fair demand, with sales at $85@90 for common English and American, and $95@100 per ton for refined. Russia sheet iron is firm at 13@14c. gold; but no sales of any importance have transpired.

Imports of pig iron from Jan. 1 to June 13:

	1868	1867
From Great Britain	3,570	16,432
Coastwise ports	5,000	3,721

PHILADELPHIA, June 17, 1868.

In pig iron there is more doing; sales of Anthracite have been made at $37@38 per ton for No. 1; $35@36 for No. 2; and $32@34 per ton for hard. Manufactured iron is firmly held at full prices.

Lehigh Valley Iron Trade.

The following table shows the amount of Pig Iron transported over the Lehigh Valley Railroad for the week ending June 13, 1868, and for the season to that date.

From	Tons.	Total
Carbon Iron Co	200	4,705
Lehigh Valley Iron Co	240	5,490
Thomas Iron Co	915	13,585
Lehigh Crane Iron Co	600	12,555
Allentown Iron Co	630	8,230
Hobert Iron Co	205	4,695
Glendon Iron Co	445	11,425
Other shippers	590	8,602
Total	3,825	69,287

Lake Superior Iron Trade.

Receipts of Ore and Pig Iron at Marquette, up to and including Saturday, June 6, 1868, by the Marquette & Ontonagon Railroad.

IRON ORE.

	Previously reported.	For week end'g June 6.	Total.
Lake Superior Iron Co	10,655	4,430	15,085
Cleveland Iron Co	4,262	1,957	6,219
Marquette Iron Co	1,826	578	2,404
Washington Iron Co	4,597	1,950	6,547
New England Iron Co	1,948	357	2,305
Edwards Mine	2,124	569	2,693
Pittsburg & Lake A. Iron Co	4,590	665	5,255
Ore to Local Furnaces	5,928	470	6,398
Total Iron Ore, tons	35,930	10,976	46,906

PIG IRON.

Morgan Iron Co	1,795	586	2,381
Greenwood Iron Co	328	....	328
Bancroft Iron Co	1 323	219	1,542
Collins Iron Co	811	217	1,028
Michigan Iron Co	1,766	257	2,023
Total Pig Iron, tons	6,023	1,279	7,302
Total Ore and Pig Iron, tons	41,953	12,255	54,208

Market Prices.

NEW YORK, June 19, 1868.

DUTY.—Bars, 1 to 1¼c. per lb.; railroad, 60c. per 100 lbs.; boiler and plate, 1½c. per lb.; sheet, band, hoop and scroll, 1¼ to 1¾c. per lb.; pig, $9 per ton; polished sheet, 3c. per lb. Payable in gold.

STORE PRICES.

Anthracite, No. 1, best.	$38 00@40 00	Bar, Swedes, ord'y sizes	— — 150 00
" " 2x, fdry,	36 00 38 00	Bar, Eng. and Am., rl'd	95 00 100 00
" Grey Forge,	33 00 34 00	Bar, Eng. & Am., com.	85 00 90 00
Scotch Pig, No. 1	38 00 42 00	Sceoll	125 00 170 00
Charcoal, cash	45 00 65 00	Ovals and half round	120 00@150 00
Old Wrought sc'p, fm yd.	47 50 — —	Band	125 00 — —
" " " fm. ves.	45 00 — —	Horse Shoe	125 00 — —
English rails, gold	51 00 51 50	Rods, ⅜@3-16 inch	100 00 160 00
American " at works.	75 00 — —	Hoop	133 00 185 00
American Bar Iron.		Nail Rod, per lb	9 10
Common, per ton	80 00 85 00	Sheet, Rus., Med. Nos.	17 18
Refined, "	85 00 90 00	Sheet, s'gle, D. & T. com	5 7
Old Railroad Iron	47 00@	Rails, Eng., gold, ton	51 00 51 50
		Rails, American	78 00 80 00

STEEL.

English, cast (2d and 1st quality) per lb	18 @23½
English Spring (2d and 1st quality)	10 @12
English Blister (2d and 1st quality)	11½ 20
English Machinery	13½ 16
English German (2d and 1st quality)	14 16
American Blister, "Black Diamond,"	11½ 17
American, Cast, Tool " "	21 23
American, Spring " "	10 13
American, Machinery " "	— 14
American German " "	10 13

PITTSBURGH, June 13, 1868.

PIG IRON AND BLOOMS.—The *Commercial* says: "A moderately active business is maintained in crude irons. Consumption is large considering the advanced period of spring trade, and, with greatly diminished receipts and reduced supplies in first hands of leading standard medium grades of forge irons, the tone of the market for this description is decidedly firmer, and, as fully two-thirds of the furnaces in the Mahoaing and Shenango valleys have been compelled to blow out, in consequence of a strike of coal miners for an advance of wages, but meagre supplies of raw iron may be expected for the next two months from that important district of supply.

"In fine irons a very fair business is doing in forge descriptions, but in foundry grades the demand continues remarkably light, and with ample supplies prices are weak.

"We are quoted the following sales:

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORE.

200 tons Open Gray to arrive	$37 00—6 mos.
100 tons " " "	37 00—4 mos.
100 tons Medium " "	35 00—cash
300 tons favorite brand, to arrive	36 50—30 d's.
250 tons Open Gray, from yards	37 00—6 mos.
300 tons Common, deliverable at furnace	42 50—4 mos.
400 tons " " from yard	34 50—6 mos.
554 tons " " at furnace	31 00—4 mos.
100 tons Open Gray from yard	37 00—4 mos.
100 tons " " "	37 50—6 mos.
60 tons " " to arrive	37 50—4 mos.

COKE SMELTED.

183 tons Ohio coke forge	$37 00—6 mos.
75 tons Allegheny forge	35 00—7 mos.
200 tons " "	35 00—8 mos.
50 tons Youghiogheny No. 3	35 00—6 mos.

ANTHRACITE.

40 tons No. 1 Foundry	$40 00—4 mos.
30 tons " "	40 00—4 mos.
30 tons " "	30 50—4 mos.
60 tons Red Short Forge	36 50—4 mos.
100 tons No. 3 Forge	36 00—6 mos.

CHARCOAL.

100 tons No. 2 Forge fine iron	$47 00—4 mos.
250 tons No. 2 fancy brand to arrive	50 00—4 mos.
100 tons a favorite forge iron	48 00—5 mos.
50 tons No. 1 Hanging Rock, Foundry	45 00—4 mos.
187 tons Medium grade	41 50—6 mos.

CINCINNATI, Ohio, June 13.

IRON.—The market for pig iron is in the same dull and lifeless condition that has characterized for some time past, but there is no disposition to press sales or to grant concessions. Malleable iron is also dull. We quote:

HOT-BLAST CHARCOAL PIG IRON.

No. 1 foundry, per ton	$41 00@43 00
No. 2 foundry, per ton	38 00@40 00
Mill iron	37 00@

COLD BLAST.

Tennessee	$45 00@
Missouri	45 00@47 00
Missouri "Maramec"	47 00@
Car wheel	60 00@63 00
Car wheel "Hecla"	63 00@

BLOOMS.

Missouri	$100 00@105 00
Missouri "Maramec"	105 00@

BAR IRON.

Common, per pound	3½c.
Charcoal, per pound	5c.

SCRAP IRON.

Cast, per 100 pounds	$1 40@1 50
Wrought, per 100 pounds	1 80@2 00

SHOES.

Horse shoes, per keg of 100 pounds	$6 75
Mule shoes, " " "	7 75

IRONTON, Ohio, June 11.

The *Register* says: "The metal market exhibits no signs of activity. Inquiries either it for foundry or forge descriptions are exceedingly limited. No transactions outside of our quotations have been made. Prices, however, remain weak. We quote:

Mill, hot blast	$36 00@37 00
Foundry, hot blast	38 00@ 39 00
Cold blast	55 00@ 60 00
Bituminous forge (Belmont)	37 00

"Nearly all the furnaces in the county will be in operation this week. In addition to the significant fact that the production will be vastly increased this year, there seems to be a spirit among the iron men to turn out a better quality of metal. In this respect quite all the furnaces will improve.

"Monitor Furnace makes excellent iron. We have noticed specimens of its production that are not surpassed in the country.

"Bar iron continues dull at 3¾@4c. One of the mills is running full-hand.

"Nails are in fair request at $5."

THE COAL TRADE.

NEW YORK, June 19, 1868.

In consequence of the shipping difficulties at Philadelphia, there is much Schuylkill coal being thrown on this market, and most of it is being sold for a song. For this reason trade in other kinds of coal is dull. There is little or nothing doing except on former contracts.

The break which occurred about six days since in the Deleware and Raritan Canal, at the ten mile level, has, we understand, been put in repair, and boats will be passed to-night for the first time. There is an accumulation of some *ten miles of boats* on the canal, which is sufficient to supply New York with coal for three months. This does not anger well for the trade hereabouts, for some time to come, unless dealers wake up to the fact that a few weeks only will be allowed them to lay in their stocks, and make a general attack on the market. We have often called to mind the fact that coal is now selling far below a fair profit, and that in a very short time it must advance. Dealers do not apparently realize the fact that we are some 1,000,000 tons in arrears of a supply to consumers, and that this great amount will all be sought after in the space of ninety days. We are confident that some one will fall short, for our shipping facilities, great as they are, cannot supply all at once.

Freights remain unchanged; vessels are a little scarce and rates are firm.

The 63d Scranton sale will be found advertised in our columns, to take place on Wednesday next, the 24th inst. Forty thousand tons of the usual sizes are to be sold. We anticipate an advance upon the prices obtained at the last sale, for the reasons we have expressed above.

Our Boston correspondent states that trade in that city is fair and the demand general. Prices, Lorberry, $4 10; White Ash stove, $4 10 to $4 25; White Ash egg, $3 90 to $4 00; Cumberland George's Creek, £4 35, with short supply. From Philadelphia we learn that vessels have arrived within the past three days; that the "trimmers" have given up the strike and gone to work; that the "heavers" still hold out, and that generally it is very difficult to ship coal. Freights are a trifle lower, say $2 50 to $2 60. Some shipments are being made on the new "Bill of Lading."

The Wyoming *Democrat* says: "The laying of the track of the Lehigh Valley Railroad between this place and Pittston, is in *statu quo* just now, the company having exhausted their supply of iron. It is said, however, that work will be resumed about the 1st of June, when a new supply of iron can be obtained sufficient for completing the track to this place. It is now laid from Pittston to near Gardiner's Ferry, a distance of some five or six miles, and with the increased facilities which canal navigation now affords, it is expected the work will be pushed forward with sufficient vigor to reach Tunkhannock in time for a 4th of July excursion.

Nesquehoning Valley Branch of the Lehigh and Susquehanna Railroad has, we understand, been located, and will be pushed through to Mahanoy City at an early day. This road will run through what is known as the Nesquehoning Valley, and is the very shortest route to Mahanoy, being about fifteen miles shorter than the Mahanoy Branch of the Lehigh Valley Railroad. The completion of this branch road will give the Lehigh & Susquehanna (L. C. & N. Co.,) access to the extensive tonnage from the Mahanoy coal region.

The completion of this road will also eventually (perhaps in a few years) do away with the Mauch Chunk & Summit Hill Gravity Railroad. The mountain between Panther Creek Valley and Nesquehoning Valley has almost a complete tunnel through it, and can be finished at comparatively little expense. Through this tunnel can be reached the Lehigh Coal & Navigation Company's mines in Panther Creek Valley, and the inclined planes and gravity road be dispensed with as an outlet to those mines.—*Gazette.*

The Wilksbarre *Record* says the project is again revived there of building a railroad from the coal region to connect with the Erie road at Hawley. A meeting was held on Saturday to consider the plan matured by George S. Stearns, of New Jersey, which has the concurrence of the Erie Directors. The distance from Wilksbarre to Hawley is fifty-four miles.

It is reported that Messrs. Mitchell & Swoyer have leased a tract of eight hundred acres of coal land above the Butler mines, in Pittston, supposed to be in the interest of the Lehigh Valley Railroad. It is a wise move in that company.

J. H. Hollenback, Esq., has an offer of one thousand dollars an acre for his property on Mill Creek. He has another offer which he thinks better, but we do not know the terms, and doubt its being better than cash. If the Lehigh Valley company wishes to build shops near Wilkesbarre, they can not get a location equal to this tract of Mr. Hollenback's on their road near the canal.

BOSTON, June 17, 1868.

In English Cannel the sales have been at $20 per ton, but the demand it quite limited. Sydney has been selling at $3@3 25 per ton, and Pictou as $7 50@7 75 per ton. Cumberland is in steady demand, with sales at $8@8 25 here; $4 35 delivered in Georgetown, and $4 75 in Baltimore. In Anthracite there have been sales at $6@6 50 by the cargo, and $7@7 50 per ton in retail lots.

PHILADELPHIA, June 17, 1868.

The market continues dull, and the prices which we print elsewhere are barely sustained.

The following table exhibits the quantity of Coal passed over the following routes of transportation for the week ending June 13 1868:

	1867.		1868.		INC. OR DEC	
	WEEK.	YEAR.	WEEK.	YEAR.	WEEK.	YEAR.
Phil. & Reading R. R.	78,533	1,405,811	70,849	1,423,213	d 7,684	i 17,402
Schuylkill Canal	36,284	327,016	16,071	331,090	d 20,213	i 4,074
Lehigh Valley R. R.	53,758	863,828	50,285	1,119,846	d 3,473	i 256,018
Lehigh Canal	30,428	226,047	34,361	266,274	i 3,933	i 40,227
Scranton North	8,704	170,263	13,989	200,674	i 5,285	i 30,411
" South	21,457	568,866	20,108	486,173	d 1,349	d 82,693
Penn'a Coal Co. Rail	20,322	316,664	23,440	359,579	i 3,118	i 42,915
Penn'a Coal Canal	468	5,746	1,064	8,017	i 596	i 2,271
Del. & Hudson Canal	41,044	414,607	49,896	440,511	i 8,852	i 25,904
Shamokin	14,511	199,743	12,820	195,553	d 1,691	d 4,190
Treverton	2,031	18,737	429	9,747	d 1,602	d 8,990
Short Mountain	.....	.....	.....	.....	.....	.....
Lykens Valley C. Co.	1,869	24,672	1,480	25,282	d 389	i 10,610
Broad Top	4,774	106,388	2,522	101,851	d 2,252	d 4,537
W'mstown Col'y, E.	2,925	41,832	4,367	75,349	i 1,442	i 33,517
Wyoming South	1,480	28,931	11,864	54,543	i 10,384	i 26,512
Lehigh & Susq. R.R.	.....	.....	8,316	171,710	.....	.....
Total	318,588	5,722,251	321,961	5,779,412	.....	.....
	.....	.....	318,588	5,722,251	.....	.....
Increase	.....	.....	3,373	57,161	.....	.....

Report of Coal Transported over Lehigh Valley Railroad and Canal
For the week ending June 13, 1868, compared with same time last year:

SHIPPERS.	RAILROAD. Week. Tons.	RAILROAD. Total. Tons.	CANAL. Week. Tons.	CANAL. Total. Tons.	Grand Total.
FROM MAUCH CHUNK.					
Summit Mines	....	....	12,601	10,652	10,652
Room Run Mines	....	....	1,718	7,637	7,637
Total	....	....	14,319	111,289	111,289
WYOMING REGION.					
Franklin Coal Co	741	3,666	....	....	3,666
Audenried	....	50	....	....	50
Lehigh & Susquehanna	....	....	....	....	....
Germania Coal Co	....	4,967	187	1,350	6,317
Wilkes Barre C. & I	....	13,044	4,187	32,058	45,082
Warrior Run	....	10,710	....	....	10,710
Parish & Thomas	731	30,073	359	3,148	33,221
New Jersey	511	9,875	252	1,885	11,760
Union Coal Co	....	2 432	....	....	2 432
Wyoming C. & T. Co.	....	3,227	....	....	3,227
East Boston Coal Co.	....	....	....	256	256
Morris & Essex Mut'l	....	1,428	....	....	1,428
Chauncey Coal Co	....	....	564	939	939
Hillman & Son	250	6,618	....	....	6 618
Bowkley, Price & Co.	....	149	....	....	149
Mineral Springs	348	9,973	....	....	9 973
Valley Coal Co	....	....	....	....	....
Enterprise C'y, J. H. S	884	15,997	66	446	16,143
G. B. Linderman & Co	....	....	....	....	....
Washington Coal Co.	....	....	....	....	....
West Pittston	21	197	....	....	197
John Horton	....	....	98	572	572
Shawnee	142	3,763	381	3,188	6 951
Consumers Coal Co.	....	2,161	....	....	2,160
Harvey & Bro	169	2,307	....	183	2,490
Wyoming Valley	188	2,462	....	....	2,462
Henry Colliery	....	513	....	....	513
New England	579	2,701	....	....	2,701
Del. & Hudson C. Co.	....	11	....	46	57
Other Shippers	5	29	91	1,126	1,155
Total	4,577	126,225	6,190	45,202	171,425
FROM S. M. REGION.					
N. Y. & L. [T. H. & Co	1,164	29,746	92	842	30,588
Honey Brook Coal Co.	2 166	55,071	1,429	8,596	63,967
Ger Pa. Coal Co	1,355	23,122	390	2,128	25,250
Spring Mountain	3,282	53,372	93	744	54,116
Coleraine W.T.C. & Co	1,969	37,895	667	4,952	42,850
B. Meadow (D. W.)	....	362	....	....	362
John Connery	....	....	....	....	....
Lehigh Zinc Co	....	....	....	....	....
Spring Brook	....	....	....	....	....
Other Shippers	13	220	....	266	486
Total	9,931	199,193	2,673	17,530	217,323
HAZLETON REGION.					
Central Coal Co	....	....	....	....	....
Ashburton Coal Co	....	433	....	64	507
Mt. Pleasant [Halsey	158	8,621	64	879	9,500
Hazleton (A. P. & Co)	6,376	128,528	2,346	20,494	149,042
East Sugar Loaf	4,665	82,587	195	756	83,343
Mount Hall	....	219	....	....	219
Latimer (A. P. & Co)	668	20,118	459	1,851	21,969
Stout Coal Co	1,247	18,177	327	3,967	22,144
Harleigh Coal Co	1,799	27,291	730	5,529	32,820
Ebervale Coal Co	1,767	39,564	1,240	8,266	47,830
Jeddo (G. B. M. & Co)	3,223	71 902	1,338	13,858	85,760
Woodside (J. C. Co	184	8,213	162	3,321	11,534
Highland	902	31 050	1,091	6,340	37,390
Cross Creek (C. B.)	63	13,074	193	2,593	15,667
C'l Ridge [S.W. & Co.	635	48,403	1,566	12,169	60,572
Buck Mountain	52	28,899	344	4,472	33,371
Other Shippers	....	....	195	1,871	1,871
Total	23,818	527,077	10,249	86,436	608,51

U. LEHIGH REGION.					
U. Lehigh Coal Co....	626	28,973	635	4,968	33,941
Other Shippers.....	....	....	....	....	....
Total.....	626	28,973	635	4,968	33,941
MAHANOY REGION.					
Mt. Rose Coal Co....	74	1.145	....	....	1.145
Mount Etna Coal Co..	75	3,380	292	758	1,903
Mahanoy Col. [N.M.M	413	13,306	....	....	13,306
Coplay Colliery.....	1,435	15.236	....	....	13.246
Glendon.....	716	19,961	....	....	19,961
Primrose Colliery....	....	6,947	....	....	6,947
E. S Silliman.....	1.441	48.186	....	....	48.186
McNeal Co.....	2,406	39,220	....	....	39,220
Knickerbocker.....	1,276	32,011	....	....	32,011
Thomas Coal Co	891	17.267	....	....	17,267
Williams & Herring..	343	5,173	....	....	5,173
New Boston Coal Co..	1,742	26,031	....	....	26,031
Shamokin Coal Co....	....	....	....	....	....
Caledonia M. & M....	513	11,894	....	....	11,894
Coal f'm Cataw'sa RR	....	....	....	....	....
Other Shippers.....	....	....	....	88	88
Total.....	11,331	237,778	292	846	238,624
Grand Total.....	50 285	1,119,846	34,361	266.273	1,386,119
Same time last year.	53,758	863,828	30,428	226,047	1,129,875
Increase.....	....	256,018	3,934	40,226	296,244
Decrease.....	3,472	....	....	....	....

Lehigh and Susquehanna Railroad, Week ending June 13.

WHERE FROM.	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
WYOMING REGION.		
Haverill	.....	.....
Newport Coal Co	.....	.....
Valley Coal Co	.....	.....
Warrior Run Mining Co	.....	.....
Parrish & Thomas	341 11	5,227 17
New Jersey Coal Co	314 13	6,444 02
Lehigh & Susquehanna	.....	15 10
Germania Coal Co	284 15	8,675 16
Franklin "	.....	.....
Audenreid Improvement	.....	.....
Wilkesbarre Coal & Iron Co	8,104 02	77,848 08
Union Coal Co	.....	2,040 07
Mineral Spring	.....	6,029 06
H. B. Hillman & Son	.....	1,303 17
Bowkley, Price & Co	.....	2:8 14
Wyoming	.....	3 006 09
Henry	274 16	2,327 12
J. H. Swoyer	66 00	2,739 06
Everhart Coal Co	.....	.....
Albrighton, Roberts & Co	564 13	939 01
Shawnee	386 10	4,043 03
Morris & Essex Mutual	.....	78 19
Delaware & Hudson Co	318 02	4,115 08
Pine Ridge Colliery	262 16	853 12
Consumers Coal Co	144 01	1,194 07
Harvey & Brothers	.....	184 11
Total Wyoming Region	11,061 19	127,296 05
UPPER LEHIGH REGION.		
Upper Lehigh	2,870 05	50,606 05
Total Upper Lehigh	2,870 05	50,600 05
HAZLETON REGION.		
A Pardee & Co	2,413 07	25,227 01
Linderman & Skeer	195 02	756 06
Sharpe, Weiss & Co	1.662 00	16,847 12
W. S. Halsey & Co	103 02	1,524 05
Harleigh Coal Co	1,034 08	11,470 19
G. B. Markle & Co	1,531 12	20,780 05
Ebervale Coal Co	1,240 14	11,346 13
Stout Coal Co	327 09	6,360 18
Buck Mountain Coal Co	608 03	6,519 15
Coxe Brothers & Co	232 01	3,479 10
Ashburton Coal Co	.....	64 06
Highland Coal Co	1,091 00	5,207 18
Pardee Bro. & Co	459 14	3,457 07
Jeddo Coal Co	240 15	4,127 09
Mount Hall	.....	.....
Other Shippers	730 16	927 02
Total Hazleton Region	11,873 03	118,097 06
" Upper Lehigh	2,870 05	50,600 05
" Wyoming	11,961 19	127,296 05
Grand Total	25,805 07	295,993 16
Corresponding week last year	8,413 14	224,506 02
Increase	17,391 13	71,487 14
Decrease	.....	.....
Forwarded South from Mauch Chunk by rail	7,768 14	134,059 14
Delivered on line L. & S. R.R. above Mauch Chunk	547 08	27,650 09
Delivered at Coal Port for shipment by Canal	17,489 05	134,283 13
Total	25 805 07	295, 93 16

Schuylkill Coal Trade.

BY RAILROAD AND CANAL, FOR WEEK ENDING JUNE 19, 1868.

	RAILROAD	CANAL
St. Clair	32,870	.....
Port Carbon	6,867	10,440
Pottsville	608	1.930
Schuylkill Haven	20,341	17,438
Auburn	3,463	.....
Port Clinton	2 845	539
Company's use	2,332	.....
Total for week	69,326	30,347
Previously this year	1.423,216	331,090
Total for season	1,492,542	361,437
Same time last year	1,475,505	334,159
Increase	17,037	.....
Decrease	.....	2,722

Statement of Coal

Transported over the Cumberland and Pennsylvania Railroad during the week ending June 13, and during the year 1868, compared with the corresponding period of 1867:

WEEK.

Year.	C. & O. CANAL. Tons. Cwt.	B. & O. R. R. Tons. Cwt.	TOTAL. Tons. Cwt.
1868....	14,969 18	15,902 01	30,871 19
1867....	14,012 05	14 201 09	28,213 14
Increase	957 13	1,700 12	.....
Decre'se	.....	.....	2,658 05

YEAR.

	C. & O. CANAL. Tons Cwt.	B. & O. R. R. Tons. Cwt.	TOTAL Tons. Cwt.
1868....	123.272 01	245,100 14	368,372 15
1867....	111,702 07	234,441 09	346,143 16
Increase	11,569 14	10,659 05	22,228 19
Decrease	.....	.....	.....

Cumberland Coal Trade.

By B. & O. RAILROAD.—The shipments over the Baltimore and Ohio Railroad, for the week ending June 13, were as follows:

From Cumberland & Pa. R. R., via Cumberland:	
Consolidation Company	3,147 10
Borden do.	1,443 15
Allegany do.	68 18
Midland	337 10
Millothian	....
From George's Creek via Piedmont.	
George's Creek C. & I. Company	2,134 13
Central "	3,520 01
Atlantic "	990 15
Swanton "	742 00
Potomac "	1,220 13
Piedmont	452 14
Franklin	779 03
Hampshire	2,190 18
Total	17,637 10
From Eckhart Railroad.	
C. C. & I Co	1,091 17
Total	18,730 07

BY C. & O. CANAL.—There were despatched from this port, during last week, 16,923 08 tons of Coal, forwarded by the following companies:

American	4,465 01
Borden	1,662 03
Central	4,750 04
C. C. & I.	1,731 13
Consolidation	894 06
H. & B.	1,639 18
Midlothian	1,780 03
Total	16,923 08

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

At New York, June 20, 1868.

Schuylkill R. A., choice	$6 00@$....	Schuylkill Chestnut	4 50 ....
" Ordinary	5 75	Lehigh W.A Lump Old Co	5 00 ...
" W. A., Lump	5 00	Lehigh Broken	4 87½ ....
" Steamboat	5 00	" Egg	4 87½ ....
" Broken	5 00	" Stove	5 12½ ....
" Egg	5 50	" Chestnut	4 37½ ....
" Stove	5 50	Shamokin	5 50 ....
SPECIAL COALS.—DEALERS' QUOTATIONS.			
Diam'd Vein R. A., Sch'kill	6 00	Old Co.'s W. A. Lehigh	5 50 ....
Locust Dale W. A., "	5 50	Mt Pleasant	5 00 ....
Honey Brook " Lehigh.	5 50	Broad Mountain	....
Harleigh " "	5 50	Buck Ridge W. A., Sh'kin.	5 50 ....
Spring M'n " "	5 50	H. Heils, E. S'kiln, Lorb..	5 50 ....
Sugar Creek " "	5 50	New England Red Ash	5 25 ....
Ashburton " "	5 50	Wyoming	5 50 ....

Dealers in these Coals may be found in our advertising columns.

At Philadelphia, June 20, 1868.

Lehigh Lump and St'mb't.	5 00@....	Henry Clay, Egg & Stove	....@4 40
" Broken and Egg	5 00	Locust Mount Lump and Steamboat	3 25 3 40
" Stove	5 50	" Broken	3 35 3 60
" Chestnut	4 25 ..	" Egg	3 60 4 00
Schuylkill R. A.	4 25 4 50	" Stove	4 00 4 15
" Chestnut	2 60	Lorberry Coal	4 50 ....
" W. A. Lump	3 25	Shamokin	....
" Broken	3 25 3 50	Franklin, (Lykens Valley)	5 00 ....
" Egg and Stove	3 40 4 10	Broad Top	4 60 ....
Schuylkill Chestnut	2 75@....		
Hill & Harris, Egg & Stove	.... 4 30		

Scranton Coal at Elizabethport, June 20, 1868.

(Corrected weekly by D. L. & W. R. R. Co.)

Lump	$4 00@....	Egg	4 50 ....
Steamer	4 25	Stove	5 00 ....
Grate	4 25	Chestnut	4 25 ....

Prices for Pittston Coal at Newburgh, June 20, 1868.

(Corrected weekly by Penna. Coal Co.)

Lump, per ton of 2240 lbs.	$4 15@....	Egg " " "	4 25 ....
Steamer, " " "	4 15	Stove " " "	4 60 ....
Grate " " "	4 25	Chestnut " " "	4 15 ....

70 cents additional to New York.

Lackawanna at Rondout, June 20, 1868.

Lump	$4 25@....	Egg	$4 45@....
Steamer	4 35@....	Stove	4 75 ....
Grate	4 35@....	Chestnut	4 25 ....

65 cents additional to New York.

Lehigh Coal at Elizabethport, June 20, 1868.

Lump	5 00@....	Chestnut	4 25 ....
Steamboat and Broken	4 75	Stove	5 00 ....
Egg	4 75		

Wilkesbarre Coal at Hoboken, June 20, 1868.

(Corrected by Wilkesbarre Coal & Iron Co.)

Lump	$4 50@....	Egg	4 50@....
Steamer	4 50	Stove	4 95 ....
Broken	4 50	Chestnut	4 15 ....

At Baltimore, June 20, 1868.

Wilkesbarre & Pittston W. A. by car	$5 25@5 50	From wharf or yard, 50c. to 75c per ton additional	
Lykens Valley R. A. by car	....@ 5 55	Retail, del'd, per 2.240 lbs	7 00@7 50
Sunbury & Shamokin R. or W A. by car	5 00 5 50	George's C'k and Cumberland f. o. b. at Locust P't for shipping	....@4 75

At Havre de Grace, Md.

Wilkesbarre or Pittston, W. A., on board	$....@4 85	Sunbury or Shamokin, R. or W. A., on board	....@4 85
Trevorton R. A., on board	.... 5 25	Lykens V'y. R. A. on b'd.	....@5 50

Havre de Grace is the terminus of Susquehanna and Tide Water Canal.

At Georgetown, D. C. and Alexandria, Va.

Georgo's Creek and Cumberland f. o. b ..... $....@ 4 35

Prices of Gas Coals.

June 20, 1868.

PROVINCIAL. Duty, $1 25	Coarse. Gold.	Slack. Gold.	AMERICAN	Coarse. Currency.	Slack. Currency.
Block House	$1 75	$ 75	Westmoreland Co.	$8 50	$8 00
Gowrie	1 75	75	Despard Coal Co.	8 25	8 00
Lingan	1 75	75	Penn	8 50	8 00
Sydney	2 13¾	71¼	Newburgh Orrel Gas	8 50	8 00
Pictou	2 13¾	1 18¾	Delivered in New York.		
Little Glace Bay	1 75	1 00			
International Co.'s	1 75	....			

Prices of Foreign Coals.

Duty $1.25 per ton.

Corrected weekly by PARMELEE BROS., 32 Pine Street, N. Y.

Liverpool Gas Caking	$ 9 50	Liverpool House Cannel	18 00@19 00
" " Cannel	14 00	" " Orrel	16 00@18 00

Per ton 2240 lbs., Ex. ship.

PRICES FROM YARD:

Liverpool House Orrel, scr'd.	$18@20	Livp'l House Can'l, scr'd.	22 00@— —

per ton 2000 lbs. delivered.

Coal Freights.

(Corrected Weekly.)

Rates of Freight from Newburgh

RIVER.

On "Pittston" Coal, by boats and barges of the Pennsylvania Coal Company, per ton of 2,240 lbs.

Troy and West Trov	$ 55
Albany and Greenbush	50
Coeymans	45
Coxsackie and Stuyvesant	40
Hudson & Catskill	35
Sangerties and Barrytown	35
Rhinebeck and Rondout	30
Po'keepsie and New Paltz Land.	25
Fishkill Landing	20
Cold Spring and West Point	20
Peekskill	40
Haverstraw	45
Sing Sing and Nyack	50
Tarrytown and Piermont	50
Yonkers	55

The Coal must be discharged with all reasonable dispatch, at the expense of the consignee, who shall also pay wharfage on the boat. Boatmen will tend guy while unloading.

EASTERN.

Stamford	$1 25
Norwalk	1 25
Bridgeport	1 25
New Haven	1 25
New London	1 40
Norwich	1 50
Mystic	1 45
Stonington	1 45
Sag Harbor	1 45
Bristol	1 55
Newport	1 55
Fall River	1 55
Providence	1 60
Warren	1 60
Pawtucket	1 75
New Bedford	1 90
Boston	1 90
East Cambridge	2 10
Salem	1 90
Newburyport	2 00
Portsmouth	1 95
Portland	1 75

Freights on Coal Sea-borne from Port Richmond, Philadelphia.

June 10, 1868.—From Philadelphia & Reading Railroad Wharves, Phila., to

Boston	2 55	2 65	New York	1 25	1 30
Portland	2 60	2 65	Dover	— —	2 75
Lynn	— —	2 75	Fall River	— —	2 10
Salem	2 60	2 65	Gloucester	2 60	2 75
Providence	2 10	2 15	Hingham	— —	2 65
New London	— —	2 00	Marblehead	— —	2 75
Williamsburg	— —	1 30	Medford	— —	3 10
Cambridgeport	2 60	3 05	Malden	— —	3 10
Chelsea	— —	2 60	Wellfleet	— —	2 90
Cambridge	— —	2 57	Newport	— —	2 15
New Bedford	— —	2 20	Pawtucket	2 20	2 25
Saugas	2 70	2 75	New Haven	— —	1 85
Saco	— —	3 15	Stamford	— —	1 75
Charlestown	— —	2 65	Brooklyn	— —	1 30
Dorchester	— —	2 60	Jersey City	— —	1 25

From Elizabethport and Port Johnston.

Albany	$ 90@	— —	New London	$1 15	— —
Boston	1 95	— —	Newport	1 40	— —
Bridgeport	1 00	— —	New York	60	— —
Fall River	1 45	— —	Norwalk	1 00	— —
Hartford	1 50	— —	Norwich	1 35	— —
Hudson	1 00	— —	Pawtucket and towing	1 60	— —
Lynn	— —	— —	Portland	1 90	— —
Middletown	1 25	— —	Portsmouth	2 10	— —
New Bedford	1 50	— —	Providence	1 10	— —
Newburyport	2 15	— —	Salem	1 75	— —
New Haven	1 00	— —	Augusta	2 25	— —

Rates of Transportation to Tide Water.

[BY RAILROAD.]

To Port Richmond.—(Philadelphia.)

Philadelphia and Reading R. R. from Schuylkill Haven $2 00

The following are the drawbacks allowed on all coal shipped East of New Brunswick and South of Cape Henry, until further notice:

	Drawback.	Freight.	Nett.
Lump	$1 25	$2 00	$ 75
Steamboat	1 15	2 00	85
Broken	1 00	2 00	1 00
Egg	65	2 00	1 35
Stove	50	2 00	1 50
Chestnut	75	2 00	1 25

From Port Carbon, 8 cents per ton more.

To Elizabethport.

L. V. Railroad from Mauch Chunk to Easton	$ 69
C. R. R., N. J., Easton to Elizabethport	1 06
	1 75
Shipping Expenses at Elizabethport	25
Total	2 00

To Port Johnson.

L. V. R R.	$ 69
C. R. R. of N. J.	1 12
Shipping Expenses	25
Total	2 06

To Hoboken.

L. V. R.R.	69
Morris & Essex R.R.	1 12
Shipping Expenses	25
Total	2 06

[BY CANAL.]

To Port Richmond.

From Schuylkill Haven to Port Richmond	$1 00
Freights and tolls by Raritan Canal	1 90
	2 90
Drawback	30
Total	2 60

To New York.

From Mauch Chunk to New Brunswick, by Lehigh, Del. Div. and Del. & Raritan Canal	$ 90
Freights through	1 25
Towage	20

To New York via Morris Canal.

Lehigh Canal	$ 34
Morris "	40
Towage	10
Freight	1 55
Total	2 39

Expenses from Mauch Chunk to Jersey City for Re-shipment.

Lehigh tolls (net)	$ 34
Morris "	34
Freight	1 50
Re-shipping	30
Total	2 48

Provincial Freights.

TO NEW YORK.		TO BOSTON.	
Sydney	....	Sydney	$2 75
Lingan	....	Lingan	2 75
Cow Bay	....	Cow Bay	....
Port Caledonia	$3 00	Port Caledonia	2 50
Little Glace Bay	3 00	Little Glace Bay	2 5

Foreign Freights.

New Castle and Ports on Tyne	€13@15 keel.
Liverpool	12s. 6d.@15s. ton.

New York Imports of Metals, &c.

The following will show the imports of Metals, &c., at the port of New York from foreign ports, for the week ending June 12, 1868. The quantity is given in packages, unless otherwise specified.

Metals, &c.	Quantity.	Value.		Quantity.	Value.
Anvils	56	414	Lead, Pigs	9,867	57,053
Brass Goods	6	284	Metal Goods	72	14,214
Bronzes	18	2,463	Nails	7	1,742
Chains and An	63	1,796	Needles	12	9,634
Copper	..	500	Nickel	6	3,581
Cutlery	48	17,493	Old Metal	....	1,989
Guns	15	1,714	Platina	1	2,726
Hardware	196	24,620	Percussion Caps	9	1,830
Iron, hoop, tons	28	1,278	Saddlery	9	1,886
Iron, Pig, tons	1,313	19,371	Steel	5,659	92,910
Iron, Railroad bars	12.265	65,203	Spelter, lbs	58,097	2,486
Iron, Sheet	197	10.726	Tin, boxes	14,307	93,187
Iron, other, tons	1,852	52,450	Tin slabs, 884; lbs.	47,456	8,293
			Wire	8	2,502

BOSTON STOCK MARKET.

(By Telegraph.)

BOSTON, June 19, 1868.

The following were the prices of mining stocks bid to-day:

Calumet	—	Quincy	22
Copper Falls	21	Cary Improvement	11½
Franklin	12½	Isle Royal	—
Hecla	40	Water Power	19
Hancock	3¼	Bos., Hart & Erie RR	15½
Minnesota	3	Rockland	—

SAN FRANCISCO STOCK MARKET.

A Telegram from San Francisco, dated June 17, to Messrs. LEES & WALLER, Bankers, 33 Pine street, this city, quotes stocks as follows:

Stocks.	Bid per ℔t.	Stocks.	Bid per ℔t.
Gould & Curry	— @ —	Belcher	26 @ —
Savage (per share)	153 @ —	Uncle Sam	.. @ ..
Chollar Potosi	250 @ 255	California	.. @ ..
Ophir	13 @ 12¾	Imperial (per share)	167 @ 168
Hale & Norcross	98 @ —	Alpha	56 @ 57
Crown Point	102 @ 103	Kentuck (per share)	153 @ 165
Yellow Jacket	1,165 @1,160	Cal. Steam Nav'n Co.	No sales

The Contra Costa *Gazette*, of recent date, says:—We have from time to time noticed the progress made by the Pacific Coal company, who have been engaged in sinking a shaft on the Marsh Ranch, near Mount Diablo, for the purpose of obtaining coal, and we are now glad to be able to announce the gratifying result of their enterprise. Within a few days they have struck, at the depth of 375 feet, a vein of coal seven feet thick, of a quality said to be superior to any heretofore found in that vicinity. The vein is nearly flat, having a dip of only nine degrees, and is unbroken. Some eighteen months since a line was surveyed for a railroad to the landing on the San Joaquin, about seven miles distant, the construction of which was understood to be contingent on reaching coal in the shaft. We learn that work will be commenced on it immediately, and, if rails can be obtained, in a few months at the furthest the track will be laid, and the scream of the locomotive heard. We congratulate the company on their success, and the people of the county generally on the development of one more permanent source of prosperiry.

Working Inclined Planes.

Within the last few years barrels of rolled hoop iron have been substituted for ropes on some of the inclined planes in America, and have been found to work well, presenting more durability and being less expensive than ropes.—*Engineering.*

AMERICAN
Journal of Mining.

WESTERN & COMPANY, PROPRIETORS.

ROSSITER W. RAYMOND, EDITOR.

OFFICE, 37 PARK ROW, NEW YORK.

By publishing contributions, the JOURNAL OF MINING does not necessarily endorse the positions assumed by contributors.

Published Every Saturday Morning.

TERMS.—SUBSCRIPTION, $4 00 per annum, in advance; $2 25 for six months Single copies Ten Cents. ADVERTISING: Twenty-five cents per line of thirteen words for each insertion inside, and forty cents outside. Terms invariably cash in advance.

DESIGNING, LITHOGRAPHING, WOOD ENGRAVING, and JOB PRINTING Executed in elegant style, on reasonable terms.

☞ Mr. T. P. PEMBERTON is Editor of the Mechanical Department nd Agent for the JOURNAL OF MINING.

☞ Correspondents, exchanges and others addressing us should be *extremely careful* to write "JOURNAL OF MINING," instead of "MINING JOURNAL," to ensure safe carriage. Communications intended for publication should be plainly written, and on one side o ithe paper only.

NEW YORK, SATURDAY, JUNE 20.

CONTENTS OF THIS NUMBER.

EDITORIALS.—The Bessemer Process—Miscellaneous Minerals of the Pacific Coast: Copper, Iron and Coal—The Vermillion Mines—Horseflesh at a Discount—Loss of Life in English Collieries—Something New—Editorial Correspondence, No. III.

ORIGINAL PAPERS.—Smoke of Smelting Works, No. III. by L. H. Mitchell, M. E.

PRACTICAL LETTERS.—Steam Cars on Street Railways—Lessons in Mechanical Drawing, No. IV, by T. P. Pemberton.

SCIENTIFIC MEETINGS.—American Statistical and Geographical Society.

ILLUSTRATIONS.—The "Oscillating or Variable Eccentric Motion"—Electric Fuse.

MINING SUMMARY.—Gleanings from Ross Browne's Report on Nevada—Reduction of Comstock Lode Ores—Concentration of Tailings—Loss in the Reduction of Silver Ores—Price of Labor and Cost of Living—Plan of the Sutro Tunnel—The Savage and Reese River Mines—The Murphy Mine and Mill—Characteristic Telegraphing—Legalization of Telegraphic Messages.—Gold and Silver: California—Montana—New Mexico—Minnesota—Dakota—Illinois—Oregon.—COPPER: Michigan—Arizona—New Foundland.

MISCELLANEOUS.—Casualty Insurance—Ventilation of Public Buildings—On the Formation of Dendrites—Sun Spots and Rain Once More, Price of Breadstuffs.

MANUFACTURING AND MECHANICAL NOTES.—Poisonous Ice Pitchers, etc.

THE IRON TRADE.

THE COAL TRADE.—Quotations, Shipments, Freights.

PATENT CLAIMS.

SCIENTIFIC BRAVITIES.

ON DITS.

THE BESSEMER PROCESS.

Many people are talking, now-a-days, of this new process for the manufacture of steel; but few understand what is its peculiar nature. In pursuance of our general policy, to give our readers, from time to time, plain and popular descriptions of the scientific novelties of the day, we propose to describe briefly, the apparatus and process of BESSEMER, which is revolutionizing the industry of steel.

Steel is a compound of iron and carbon, stauding in the series between wrought-iron and cast-iron, the former having less carbon, and the latter more, than steel. An old authority gives the contents of carbon in different classes as follows:

Pure refined iron contains	.....	0.00 per cent.
Soft cast-steel "	.....	0.83 "
Common cast-steel "	.....	1.00 "
Harder cast-steel "	.....	3.33 "
White cast-iron "	.....	4.00 "
Mottled cast-iron "	.....	5.00 "
Black cast-iron "	.....	8.00 "

The old-fashioned way of manufacturing steel—the so-called blister steel—was to first produce a refined iron, and then cause the bars to re-absorb the necessary quantity of carbon in the converting-furnace, where they were treated, embedded in charcoal for at least a fortnight. The cost of a process which required so long a period for its completion, was, of course, considerable; and, when complete, it was hardly satisfactory. The quality of the steel thus produced by cementation was not perfectly uniform and trustworthy. It was found necessary to re-melt the product of the converting-furnace in crucibles, and, under the name of cast-steel, the result of this second process was brought into market. The fine qualities of cast-steel are acknowledged. No one claims that modern improvements have effected much advance in those points. But the very high price of cast-steel excluded it from many applications, for instance, for purposes of construction, in ship, bridge, and railway building, where certainty and uniformity in the material are necessary. The costliness of cast-steel as compared with bar-iron or even common steel is quite explicable when we consider that it takes about twenty tons of coal to melt one ton of steel. It is evident that any process which will supersede the converting-furnace and the steel furnace, and produce in a short time, direct from the pig, steel of fine and uniform quality, must be a great advance on the cumbrous and roundabout method of the past.

The manufacture of steel by puddling was an attempt in this direction, and relatively a very successful one, though its success is now eclipsed by that of the Bessemer process. It was (and is still) carried on in furnaces very similar to iron puddling-hearths, and up to a certain point, the process is but slightly different from the puddling of iron, for the manufacture of bars. Remembering that wrought-iron contains less, and pig-iron more carbon than steel, the reader will easily comprehend that the same process of decarbonization and refining which produces wrought-iron from pig, might, if stopped short of its final result, produce steel from pig.

This is the *rationale* of the manufacture of puddled steel, reduced to its simplest terms, and stripped of many subordinate, but essential principles. It naturally follows, that steel-puddling is a shorter process than iron-puddling, but the necessary fluxes, the fine quality of pig required, and the high degree of skill and fidelity demanded of the workmen, (since the success of the process turns entirely on checking the puddling at the proper moment—to be determined by the judgment of the puddler), together with the fact that failures periodically occur and occasion loss of time and material, render the manufacture more costly than would at first appear. The steel is not of the best quality, though it may be refined and improved. Being much cheaper than blister steel, it commanded at once a large market for many applications.

The introduction of puddled steel in 1850, marked an era in the steel manufacture, as the statistics of that industry show. The manufacture of steel in France, for instance, was increased ten-fold between the years 1847 and 1857, mainly from this cause. Nothing else can parallel this enormous development except the rapid spread of the Bessemer method.

But, while the puddling process greatly simplified and extended the production of steel, it required much skilled labor and considerable expense, and the great *desideratum* of a uniform, certain and controllable result was still, to a certain extent, wanting.

The Bessemer process may be briefly described as follows: Pig-iron (which contains, on the average, about five per cent. of carbon) is melted in reverberatory furnaces, and the fluid metal is run into a converting vessel, where it is freed from carbon by the application of a strong blast. The carbon unites with the oxygen of the blast at an intense white heat, and, in eight or ten minutes, a mass of from five to ten tons of molten iron is entirely decarbonized. A quantity of iron containing the exact percentage of carbon necessary to transform the whole mass into the requisite quality of steel is now poured into the vessel; and this combines so readily and perfectly with the refined iron that in ten minutes more the process is complete, and the contents of the converter are poured into the casting ladle, to run into an ingot of steel.

The advantages of this plan are obvious. It saves time, fuel and labor; it is not dependent upon the manual dexterity of workmen; it admits of operations on a vast scale; and, while it would be, perhaps, too much to claim that an absolute control of the result is obtained, there is at least no doubt, that the Bessemer converter more nearly puts that control into the hands of the metallurgist than any other apparatus yet invented. Already the spectroscope has been used with success, as a means of determining with scientific accuracy the stages of the process; and we are not far from a complete power over the details of a manufacture, which has hitherto been largely a matter of blind empiricism or chance.

A glance at the old and tedious method of making steel, will help us to measure the great progress thus accomplished. The former plan embraced (1) smelting of the ore and the production of pig; (2) remelting, puddling, and rolling into bars; (3) slow conversion by cementation into blister steel; (4) remelting and casting. The second, third and fourth of these operations are now replaced by a single cheap, rapid and thorough process. It is scarcely possible to measure the influence of such a change. The present production of Bessemer steel exceeds ten thousand tons per week! It is one of those causes, deeper than wars and dynasties, which transform the conditions of universal civilization. We are entering upon the Age of Steel.

MISCELLANEOUS MINERALS OF THE PACIFIC COAST—COPPER, IRON, & COAL.

We find one of the most elaborate and interesting sections of the report upon the mineral resources of the States and Territories west of the Rocky mountains, to be that devoted to the miscellaneous minerals of the Pacific coast. Instead of merely giving a list of all the minerals of the country, with the localities in which they are to be found; it was thought, by the writer of this valuable chapter, to be more in accordance with the character of the report, that selections should be made of the best known, and the most important minerals, and the attention confined to the statement of a few facts in regard to them. These statements are by no means claimed to be complete in detail, though it is thought that sufficient data are given in order to enable the reader to draw very just conclusions in regard to the extent and variety of the miscellaneous mineral resources of the western slope of the Rocky mountains. At the outset, the writer says, in substance, that he finds great difficulty in selecting from the great mass of material in hand, all of it interesting in detail, such portions as will convey, within the prescribed limits, the necessary information in regard to the extent, nature and developmennt of the minerals of the coast, exclusive of gold, silver and quicksilver. The first place has been, very properly, given to the consideration of copper. Before speaking of the mines that have been discovered and opened, and the copper smelting works that have been erected, a few words are said in regard to the present depressed state of the copper interest. As in the Pacific States and Territories, copper mining is in its infancy, it becomes, of course, to them, a matter of vital importance whether there is to be a rise in the value of copper. Should such be the case, then copper mining enterprises that have been seriously crippled might hope for a prosperous future. Upon this question the report very considerately remarks:

"Reference to some of the causes which have thus crippled the development of this source of wealth affords the best means for judging whether such reduction is likely to be permanent, or of merely temporary duration. India, for the past quarter of a century, has absorbed all the ingot copper sent there from all parts of the world. Many of the wealthy natives in the distant interior of that country, hoarded these ingots as treasure, and they passed as currency among them. The importations of gold and silver since the discovery of these metals in California and Australia, together with the extension of railroads and other features of European civilization in Asia, have almost entirely abolished this custom. The precious metals have superseded copper in the business of its semi-barbarous people. This change has not only caused a stoppage in the demand for copper in what was formerly the best market for its disposal, but thousands of tons, the accumulations of years, have been brought out from hiding places to be exchanged for the precious metals. It will require years to absorb the present supply of copper in India by the manufacturers of that country, particularly as most of the utensils and ornaments made of that metal used by the people are imported from Europe or the United States. The increasing supply of ores from Australia, Cuba, Chili, Africa, Europe and the United States, before the revulsion in India was severely felt, had already begun to exceed the demand; and, of course, this excess has greatly increased since, giving the control of every open market to those countries where it can be mined and melted at the lowest cost. The increase in the number of vessels built of iron in Europe, and the decline in ship-building in the United States, have curtailed the demand for sheathing, which a few years since was the chief use to which copper was applied in this country. Another cause for the decrease in the demand for copper arises from the substitution of cheaper metals in the manufacture of articles formerly made of copper, and the introduction of processes for depositing copper on other metals by electricity, by which a mere film of the dearer metal gives the cheaper one the appearance, and causes it to serve most of the purposes of the other."

The above are thought to be among the leading causes of the present low prices of copper. They seem to be causes that are deep-seated in their nature—that strike at the very root of things. There are features about them that indicate that they will be lasting, rather than ephemeral. Under such circumstances, it is clear that the future prospects of copper mining upon the Pacific coast are by no means the brightest. The copper ores of Califoirnia, it is said, are unable to compete in the European markets with those that come from the mines of South America, Africa, and Cuba. It is, however, to be hoped that with the gradual cheapening of the price of labor, the time is not far distant when, instead of the shipment of copper ores to distant ports, they may be smelted at a reasonable rate of profit near the mines that produce them. Until then, we can hardly look for real prosperity in the field of copper mining.

The report speaks very favorably of the steps that are being taken in the development of the iron industry upon the Pacific coast. The recent discoveries of deposits of coal good for smelting purposes, have directed the attention of capitalists to this most important branch of manufacture, and the Oregon Iron Works upon the Willamette river, which commenced successful operations in the summer of 1867, has been one of the beneficial results therefrom. With all the raw material necessary for home production, it is certainly to the interest of those States that, as soon as possible, they manufacture their own iron. In speaking of the consumption of iron in the inland districts, the report says, what seems to us very much to the point:

"The demand is limited by the difficulty in supplying it. The cost of erecting smelting works on a scale sufficiently large to supply the great demand, need not exceed a few thousand dollars. The profits of such an establishment located among the mines, or on the line of a railroad connected with the mining districts, if properly conducted, would be remunerative. It is strange that with such facts patent to capitalists, works of this kind have not been established at points where materials and facilities are known to exist for carrying them on to advantage."

In regard to the discovery of mines of coal, their character, development, and present condition, the report gives that attention that the important nature of the subject demands. The general conclusion arrived at is:

"That the coal deposits west of the Rocky mountains, though yielding an inferior quality of coal, are quite extensive, and furnish such promise of improvement as to justify the belief that the supply will be sufficient in the future for the demands of all branches of industry on the Pacific coast."

Coal mining, though still in its infancy, has exerted already a very beneficial influence upon the manufacturing interests of the country. The discovery of the California coal mines, with their development, has caused a reduction in the price of coal, during the past ten years, of $20 per ton, While at the present time the average price is $16 per ton; in 1857 imported coal sold at the rate of $35 per ton. In speaking of the present condition and future prospects of the California coal mines, it is remarked:

"That it has not been a remunerative business to the capitalists who have engaged in it, owing to inexperience in the working of the mines, injudicious management, the high cost of roads to navigable waters, and the difficulties to be overcome in creating a market where the best imported coals had been so long in use. All these obstacles to success are gradually disappearing, and it is believed the coal interests in California will, in time, pay a fair percentage upon capital invested in it."

THE VERMILLION MINES.

We published in the JOURNAL OF MINING of May 30th some statements in regard to the Vermillion mines in Minnesota, for which the Superior (Wisconsin) *Gazette* is responsible. The statements appeared at the time to be so untrustworthy that we felt compelled to remark editorially as follows:—"We hope none of our readers will be so foolish as to get excited over the statements printed above." As proof that we were entirely correct in our conclusion, we need only refer our readers to a letter from Col. H. Tindall, which appears in another column. While local newspapers are more devoted, it seems, to getting up a mining fever than to a conscientious regard for truth, it is very satisfactory to know that Col. Tindall discountinances all such efforts. It is certainly most commendable in him that he should thus, in a very few words, give the facts in the case. It is clearly his wish that the growth of mining industry in Minnesota, if it is to be at all, be real, not ephemeral. The real truth of the matter in regard to this Vermillion district seems to be this. Attention was called to

the presence of gold and silver in the year 1865. Geological investigations have shown that quartz veins, cutting through talcose slate, are pyritical. The pyrites of these veins are both auriferous and argentiferous. The results of numerous assays have given widely different results. One authority gives results varying from about $7 to $69 per ton. While Col. Tindall writes us that the results of his assays vary from $10 to $100 per ton. Still another series of assays give results varying from $10 to $35 per ton. Perhaps, upon an average, these Vermillion district mines contain $25 per ton of precious metal. We wish all success to Vermillion district, but must venture the opinion, that as long as there remains difficulty in reducing Colorado pyrites gold and silver ores worth several hundred dollars per ton, profitably, no very great prosperity can attend the working of these obstinately reduceable sulphuret ores of the Vermillion mines, containing only $25 per ton of gold and silver; and that, too, making any allowance, if necessary, in favor of the latter as regards cost of living and labor. With the discovery of richer mines, which is by no means impossible, the region may eventually attain that distinction, that local newspapers would fain give it at the present moment.

Loss of Life in English Collieries.

Says the *Colliery Guardian*: "The loss of life arising from colliery accidents is lamentably large." It seems, indeed, to be so large as to have attracted the attention of Parliament, who are now agitating the question as to the propriety of a Royal Commission to oversee matters and things. We learn that in 1865 and 1866 colliery accidents occurred to such an extent as to involve the loss of 2,468 lives. English coal mines seem to fill about as many graves as American railroads. We fear, however, that unless Parliament is more prompt to act upon humanitarian questions than Congress, the application of the remedy lies a long way off. Let us hope that in the future working of our coal mines to deep levels, skill and good management will act together so harmoniously and effectively that they will not be converted into huge black charnel-houses—and that, too, for the living, rather than the dead!

Horse Flesh at a Discount.

It is well known that for years horses have been extensively used upon the various underground levels of the British coal mines, for the purpose of hauling coal to the main shaft. We learn that this exceptional use of the animal is likely soon to come to an end. It is being found out by the English mine owners and mining engineers that, with the introduction of endless wire ropes, steam-power can serve their purpose quite as well as horse flesh; not only as well, but it is also shown that there is a saving of both time and money. It would be a grand thing for humanity if steam-power and wire ropes could be made to take the place of human, as well as horse flesh, in those pits of fire-damp and death.

Something New.

We understand that a certain scientific editor, now travelling in the Western States and Territories, collecting information as regards some of the sources of our national wealth, has come into the possession of a fine fortune. Though we can hardly call him a millionaire, we feel justified in intimating that he has been given a daughter as heiress. We congratulate him, that while gathering statistics on one side of the continent, he has been successful in adding thereto on the other.

EDITORIAL CORRESPONDENCE NO. III.

THE TRANSIT—PANAMA—DE BELLO GALLICO.

OFF ACAPULCO, May 22, 1868.

The transit of the isthmus, interposed as it is between the scenes of two great and busy cities, New York and San Francisco, impresses the traveller like a dream. The shining, half-naked negro porters of Aspinwall; the stately Creole women, with their baskets on their heads, their trailing skirts, and their chemises slipping from their polished shoulders in true fashionable style, only more gracefully; the miraculously lean haggard curs of the same locality—all body, too, and no legs, and making one imagine that when the hidalgos of Castile blent their proud blood with the native race of the isthmus, their high-bred dogs, emulating their example, must have intermarried with the Chagres alligators; the coral reefs, the cocoanut trees and the quaint architecture of the houses; all these and many other features, give one the immediate and proud consciousness that he is in a foreign land. The sight of the Colombian flag, and the diminutive and dirty soldiers of New Grenada, standing guard at various unneccessary points, completes the foreign effect.

The trip across the isthmus by the railroad is just long enough to be charming and not tedious. The brilliancy and luxuriance of the tropical forest are refreshing indeed to eyes that have for days only watched the monotonous sea running through its limited gamut of color—blue, green, leaden, blue and green. The Chagres flows sluggishly, for a considerable distance, alongside; we keep a sharp look-out for alligators, and think of the old times (not so very old, either) when travellers "poled" their flatboats up that river of death, through rank, malarious swamps, and then took the toilsome journey to Panama on mule-back. Now we spin along in the cool, many-windowed cars, with their cane-bottomed seats, and look gaily out upon the bright bowers that have so often been sepulchres, and chatter: "They say every cross-tie on this road cost the life of a man." "Why, Mr. ——, how you talk!" "Yes, ma'am, it is true; they tried every nation in the world; whole ship-loads of Irish and Germans, swarms of Chinese; but they died off like sheep; and those that didn't die, committed suicide. It was the pig tails that developed a taste for hari-kari, and cheated the company by taking pay in advance." "Well, who did build the road, then?" "The Jamaica niggers, ma'am." It was long a problem of the gravest difficulty, what was the earthly use of a Jamaica nigger. That question is at last answered. We need not despair of anything in nature now. Doubtless sand-flies, and crocodiles and members of Congress and other things lazy, or malicious, or both, have their uses too! Pleasant idea that, about these ironwood cross-ties! Just fancy yourself, rattling away at this pace over dead men!" etc. etc. There is nothing that awes us so much as the death of one person; there is nothing that affects us so little as the death of a great many.

At Panama, two or three of us remained on shore after the remaining passengers had gone on board the Pacific steamer, and spent a few hours in rambling through the town, joining our companions before they sailed by means of the company's tug which was employed in towing out to the great steamer the lighters used for the transferral of the baggage and fast freight. It was Sunday afternoon. The churches, of which Panama has a good many—huge massive, dilapidated Spanish edifices—were all closed. The streets were quiet, though half the shops were open. In one of them we saw a *padre* apparently making purchases. A boy was hurrying along, with a game-cock under his arm, towards the cock-pit, which is nothing less than the ancient Spanish citadel, now a ruin devoted to the characteristic national pastime. The great, arena of Rome is now a church; the fortress of Panama is a cock-pit. *Omnia mutantur.* As we passed by, not choosing to keep our first Sunday on shore in such a manner, we could see the heads of the spectators, gathered in the amphitheatre, and waiting for the sport to begin. The charge for admission to one of these exhibitions is about ten cents; but considerable sums are lost and won in betting on favorite chickens. One of our company, an old cruiser in these parts, tells a story about cock-fighting, which we fear is not new, and know is not true; but as he says it is so old as to be be virtually new, and so good as to be virtually true, we accept the yarn, and herewith reel it off again.

It seems there was an American ship at Panama, once upon a time; and the boys thought they would show the natives a thing or two in cock-fighting. They had on board a bald eagle, which they transformed, by clipping of wings and ruthless pulling out of tail, into a most ungainly, deformed and pusillanimous chicken. This nondescript animal was entered for a fight. The game cocks have a way, when first placed in the ring, of crouching and "pointing" at each other. Then they advance across the intervening space, and, meeting in the center, with heads erect, and fury in every movement they fly at one another, each endeavoring to drive his long steel spur into the head or breast of his adversary. On this occasion the veritable gamester, victor in many a well-fought scrimmage, began his usual tactics, while his clumsy adversary nestled quietly where he had been placed, and paid no attention to him. Anticipating an easy victory, the joyous rooster now advanced without ceremony, and delivering one or two smart blows, somewhat damaged the aquiline features of the foe; whereat old Sleepy, without taking the trouble to rise, quietly reached out a claw, caught the frisky warrior, and pulled off his head! This was unscientific, but conclusive. (The way in which the American eagle, though sadly clipped and crippled, finally put claw on the cavalier game-cock of Rebellion, was suggested as a parallel by one of our number, who is nothing if not patriotic; but we decline to spoil a fine story with a moral)

The streets of Panama are narrow, but clean. The drainage appears to be good. We saw an excellent sewer in process of construction. The buildings are of stone, and almost invariably provided with arcades on the outside. We passed along in a brisk rain, without serious inconvenience, being protected by the arcades and projecting roofs. There are one or two really fine hotels in the town; and a large number of French, English, and other wholesale houses. Panama and Aspinwall being free ports, the former is a great national *entrepot* of commerce. It is said to have developed and improved a good deal since the railroad was finished; but one rather wonders that it has not grown still more rapidly.

The real old city of Panama is some distance from that portion which is now inhabited. It is nearly a ruin. The present city is surrounded with a heavy wall, many parts of which are still in good preservation. The ramparts are wide enough, along the sea-front, to afford a fine carriage-way. We walked partly around the city, following the wall. The barracks stand close by, and the cells for prisoners are in the city wall itself. In the barrack-yard is a large heap of shot and shell thrown into the city by Bolivar, when he bombarded it from the heights on the north. Time and change and violence have spent their force upon old Panama. Now she rests like a battered ship, come safe to haven, and preparing for a new and more prosperous voyage. Her best days are yet to come.

R.

Scientific Meetings.

AMERICAN STATISTICAL AND GEOGRAPHICAL SOCIETY.

THE COAST OF BRAZIL, ITS GEOGRAPHY, GEOLOGY, NATURAL HISTORY, ETC.

PROFESSOR HARTT, of Vassar College, Poughkeepsie, and late Geologist and Naturalist of the Agassiz Expedition to Brazil, delivered a discourse on the above subject, recently, before the American Statistical and Geographical Society. He began by saying that in the expedition of 1865, with Professor AGASSIZ, he was so deeply interested in some things which he observed in South America, that he resolved to return thither, and, accordingly, last summer he re-visited Pernambuco, and surveyed the coast line, and looked somewhat at the interior of the country. In tracing the physical geography of the country, as depending upon its geological structure, the Professor brought forward many points of interest. The mountain ranges along the eastern coast of Brazil were composed, he said, of stratified granite almost the same as that of Manhattan Island, and formed probably in the Eozoic age. Gold and diamonds were to be found in large quantities, but mining for the former had been almost abandoned, in view of the more profitable character of diamond explorations. The crude manner of the natives in pursuing mining operations was next described in a very interesting manner. Some of the specimens of gold were nicely crystalized, and others greatly mashed up by glacial action. There was, thought the Professor, a vast amount of unworked treasure still to be developed. There were the best evidences of the existence of great coal beds in Southern Brazil, in fields which have only recently been opened. Strange to say, Brazil, with this great coal bed, had been importing coal at great cost. On the coast there were, as was the case in North America, no traces of the Jurassic period. At the end of the Chalk period, during which there were great geological disturbances, the ground sank, perhaps, 3,000 or 4,000 feet, and was covered by water. When the land arose again it was elevated above its present position, as shown by the best evidences. The remainder of the discourse was devoted to a description of the reefs along the Brazilian coast, and an account of their origin. The coral reefs particularly engaged attention. They are called by the natives *chapeirao*, and belong to a different province of zoology than those of the West Indies.

It was late when this point had been reached, and the further elaboration of the subject was deferred until a future day. A vote of thanks was offered at the close of the lecture to the learned Professor.

Original Papers.

[PREPARED FOR THE AMERICAN JOURNAL OF MINING.]

SMOKE OF SMELTING WORKS—No. III.

BY L. H. MITCHELL, M. E.

In my last paper, the injurious effects of the smoke of the metallurgical works at Swansea, St. Helens, Frankenscharn and Oker, were discussed at some length. There are several other cases that present some points of considerable interest. The smelting works at Altenau, for instance, are situated in one of the villages of the Hartz mountains, and surrounded with woods. The noxious influences of the smoke upon the timber are readily seen, even though they are not very widely extended. The roasting of the matt and also of pyritical copper ore in heaps in the open air are thought to be the chief causes of injury, though it is allowed that when the blast-furnaces are in action some share of the blame should rest upon them. The destruction of, or injury to, vegetation, shows itself for the most part down the valley, that is, in a northerly direction from the works, and more especially upon the left, or west side of the valley. This results from the fact that the most of the furnaces are situated upon that side, and also the area in which the heaps of copper pyrites are roasted.

In case of many other works that were visited, where lead ores containing sulphur, or zinc blende, was roasted, the noxious influence of the smoke was particularly seen upon the trees, though for the most part it did not appear to have extended its influence a great way from the works. This noxious influence showed itself to be the greatest, perhaps, at Stollberg, in the neighborhood of the great lead works of Muensterbusch, and also of some zinc works situated near by. In the vicinity of the works at Oberhausen, Berge-Borbeck, Holzappel, etc., it was noticed that the trees had been attacked, and also that the vegetation of the neighboring fields had been somewhat injured. At other places it was found out upon inquiry, that complaints had been made of the evil effects of the smoke of works, and, moreover, that the parties had received compensation. This has taken place even at works where no sulphurous ores were roasted, as, for instance, at those near Moresnet, Muehlheim, and St. Leonard. At the last mentioned place, a suburb of Luettich, where there are a great many other manufactories that give forth smoke; the complaints have, in the past, been very violent. It is thought, however, that in this case it is not so much the peculiar evil influence of the smoke itself that lies at the bottom of these complaints, as it is the great inconvenience of the dusty matters that are carried away with the smoke from the various works.

At the copper works at Stadtbergen, the injury that was formerly caused was found to be quite peculiar. At that place the copper was extracted by the wet way. The residues were thrown away. It was afterwards found that rain water, in trickling through the mass that had been thrown away as useless, took up copper vitriol and thereby poisoned the waters of a brook flowing by. This has of late been prevented. By means of dams, small ponds have been con-

structed. The rain water, impregnated with copper vitriol, is caught in these ponds, and the copper precipitated from the liquid mass by means of metallic iron. The acid solution containing iron, which is the result of that treatment, is then neutralized and freed from its iron by means of lime.

Having considered the evil effects of the smoke of smelting works upon the vegetation of the lands lying near by, both from a theoretical and a practical point of view, it will be sufficient for my purpose, now, in the second place, to point out the means used, in order to render harmless the smoke charged with poisonous gases and volatile matter that passes off from metallurgical works. Of all means that have hitherto been employed in order to render the smoke uninjurious, the construction of canals and chambers is the most common. By many German, Belgian, and English smelters, it is considered the most effective; while many look upon it as the only really practical method.

First of all, of course, these canals and chambers bring about a precipitation of the greater part of the solid particles that are contained in the smoke. This gives, however, opportunity for the condensation of the sulphurous acid, and also the sulphuric acid that has been produced by means of the combined action of moist air and basic oxides upon the former. It would seem, then, that in case of lead works, often times canals and chambers fulfil a double purpose. They are of use first, in saving matters that have been volatilized, and that are yet sufficiently metalliferous to pay for subsequent metallurgical treatment; and secondly, they lessen quite materially the amount of injury liable to be done by the smoke upon the surrounding vegetation. Upon nearly all of the works visited, therefore, canals and chambers were found; though of course, they differed very much in regard to size and manner of construction. Very many different methods of construction have been given to chambers; but, it is said, that investigations, thus far, do not show which is the most advantageous. As, in part, at least, a necessary adjunct to canals and chambers, the high chimney must be mentioned, since without this the necessary draft could not be obtained.

TO BE CONTINUED.

Manufacturing and Mechanical Notes.

No. XXIV.

The great business improvements that are constantly going on in New York City exhibit a steady progess in mercantile interests. Buildings, in large numbers, with new substantial fronts, are taking the place of old ones. Broadway is receiving a new pavement, and the postoffice has had some addition in the shape of another story, since the Government has taken a new lease of the old church for five years. There have been improvements also in many stores, among which we may mention those at the corner of Liberty and Nassau streets. We noticed in this locality the store, occupied by one of our most active tradesmen, who formerly transacted business in Pearl street. This store attracts considerable attention, and many pedestrians in their walks to and from the postoffice, pause in their haste to admire the numerous specimens of mechanical industry that are on exhibition in the large windows. Our readers cannot fail to recognize the store we allude to, for, here elegant models and emblematic signs of eagles, horses, and ploughs, shine in gilded effulgence, while above them all, towers a splendidly carved representation of the Goddess of Liberty. These emblematic signs, weather vanes and models, are frequently placed at such a height from the eye that few observers are aware of the good mechanism and art that have been displayed in their construction of late years. Many of them are beautiful in design and workmanship, and their present proximity to mother earth allows the visitor to examine and criticise their merits, ere they take their high position, where they are to become the indicators of wind and weather.

Messrs. CUSHING & WHITE, who are the pioneers in the manufacture of these emblems, ornaments, weather-vanes, &c., have lately exhibited much skill as mechanical and artistic draftsmen. Over eighteen years ago Mr. A. L. JEWELL commenced the business at Waltham, being the first to start the business. It has been continued by the same workmen and his successors, Messrs. CUSHING & WHITE, who, with the experience that has been brought into the business, have built up a department of mechanical industry which is daily receiving more public notice and appreciation. The weather-vanes are made of copper, the letters and balls of composition, copper, and brass. The spires are wrought iron, with steel spindles, turned and true. The firm manufacture seven sizes of spires, and points of compass—the letters varying from two to twelve inches, and the balls from two to twenty inches. The gilded articles are so finished that they will keep bright many years. This is as it should be, for a weather-vane is a thing that will last, if made properly. The works of the WALTHAM WATCH MANUFACTORY have some fines pecimens of weather-vanes, manufactured by Messrs. CUSHING & WHITE. These buildings are well-known, and admired not only for their generally handsome appearance, but also for the taste displayed in the more ornamental parts of the structures. "Decorating the landscape can only be done by grading, trees, hedges, walls, and fences—all well enough in their way, but some of them slow, all expensive, and amounting to but little unless tastefully done and carefully kept. A neat ventilator and vane can be had for a small sum of money, and will make more show than ten times the amount expended in any other way, besides giving ventilation, which is really important to the safety of grain and hay, as well as to the health and comfort of animals, and display some taste and refinement."

Poisonous Ice Pitchers.

The lining, or inner chamber, of the greater part of the ice pitchers in common use is made from two different metals or alloys. As it is necessary that the bottom should be quite strong, to resist the blows from the ice when carelessly thrown in, this part has been made of nickel silver, copper, or other hard metal, while the sides of the chamber are generally made of britannia or "white metal," the two parts being soldered together and then silver-plated. The corrosion of this lining and solution of the metals in water naturally results from this mode of manufacture; because these different metals, in contact, under water, form a galvanic arrangement. If a silver coin be placed above the tongue and a piece of zinc below, allowing the edges to come in contact, a metallic taste will be perceived in the mouth, from the galvanic action and solution of one of the metals. And the action is similar in these linings, only that it is not so violent at first. Several of these linings, made as above and in common use, have been examined; some of them are very badly corroded, and it is noticeable that the solder has been first attacked. In one of these a nearly pure water was left for several hours that the effect might be noted. In one hour the water contained traces of lead and copper. In four hours the water contained 0.7 grain of lead and copper. In twelve hours the water contained 1.6 grains of lead and copper. In twenty-four hours the water contained 3 grains of lead and copper. And, with a natural well water, this action is still more energetic. Metallic poisoning is one of the greatest enemies we have to contend with in the struggle for life, and it is common knowledge that lead and copper are highly poisonous and accumulative.

Professor S. DANA HAYES, of Massachusetts, after analyzing some water that had been standing in an ice pitcher, which was constructed from one piece of metal, found that at the expiration of forty-eight hours the water did not contain a trace of metal. It was then boiled in the lining for an hour, and analyzed twice during that time, but it was still perfectly free from metals of any kind. It appears evident therefore that ice pitchers without seams or soldering are decidedly the safest, as no galvanic action occurs.

Appleton's New Book Factory.

Messrs. Appleton & Co., the well-known publishers have recently erected one of the largest book-making establishments in the world. The buildings are located in Brooklyn, N. Y. and cover an enclosed area of over one and a quarter acres. The works have a frontage of 200 feet on Kent avenue, 252 on Hewes street, and 193 on Penn street. There are remarkable precautions adopted on all sides against fire. The partition-walls between all the rooms are of brick, and the doors opening into them from the hallways are of massive iron; so that, in case of fire, any one part of the building can be isolated from all the rest. On each floor is a fire-plug with hose ready for attachment.

In the centre of the ground, enclosed by the buildings, stands the engine-house, where the motive force is supplied by a splendid engine of 80 horse-power.

Flexible Slate Roofing.

This material is manufactured in rolls containing one hundred square feet; it is said to be applied with less trouble and expense than other roofing materials now in use. Each square, when in rolls, weighs about fifty pounds, and when nailed down and slated, about one hundred pounds, thus obviating all difference from heavy roofing. It is adapted for any grade of roof; and for eavetroughs, valleys, hips and saddles. No cold is severe enough to crack, and no natural heat will cause it to run or spread. It is also fire-proof, equal or superior to tin, and the expansion or contraction, either by heat or cold, will not cause the nails to start, the elasticity being sufficient to obviate all difficulties in this respect.

The Mason Manufacturing Company.

The works of this company are located in Springfield, Mass. The foundry heretofore operated by Mason, Ladd & Co. has been purchased by them. They have recently received an order for castings and iron-work for 600 freight cars for the Central Pacific railroad. They have already furnished iron-work for 1100 cars on this road.

The Collins company, at Collinsville, Ct., was organized in 1835, and continued the manufacture of axes, &c., at Collinsville, Canton, begun by D. C. Collins & Co. in 1826. The shops of the company are 23 in number, and would, if put together, make a building 1¼ miles long and 25 feet wide. The annual consumption of coal is 10,000 tons of Lehigh and 20,000 bushels of charcoal; the number of hands employed is 500 to 800, and the daily product 5,000 tools—axes, adzes, hatchets, sledge hammers, matchets, &c., &c. The manufacture of matchets, for use in Central and Spanish America, was begun in 1845, and the product of these was increased from 1,000 dozens to 18,000. In 1860 the company began to manufacture ploughs under F. Smith's patent, and have since turned out over 50,000. These mammoth works are supplied in dry weather with water from a reservoir in Otis, Mass., which covers 1,050 acres, and can discharge through the aqueduct 8,000,000 cubic feet of water in 24 hours.

LEGAL INTELLIGENCE.

Alleged Frauds in Mining Stocks.

COMMON PLEAS—SPECIAL TERM.

[Before Judge Barrett.]

John Sensendorfer vs. Jerome B. Chaffer and others. The plaintiff in this case, owning five-ninths of certain mining property in Colorado, bought out of one Buckmiller the other four-ninths for $100,000, paying part down, and giving notes and a trust deed of the whole property as security for the balance. He then came East and formed a company. As the trust deed expired in May, 1867, he placed a portion of the stock of the company (the total being $1,000,000) in the hands of a party here to sell and raise money to pay off the trust deed. In December he, as he says, by the persuasion of the defendant Chaffer, that his former agent was neglecting his interests, placed 14,000 shares of the stock (nominally $50 per share) to be disposed of by them, they to return him $20 per share, or if they got $25 per share, $21 50. If they could not dispose of it then, that they should return the stock to enable him to raise money to meet his debt to Buckmiller. They did dispose of it, and plaintiff charges that they not only neglected to do so, but purposely avoided to do it to embarrass him and compel him to make terms favorable to them. A change in the denomination of the stock was made about this time from $50 to $20, and the number of shares increased, the 14,000 becoming 35,000 shares. About the beginning of May, the plaintiff, under, as he claims, the pressure brought to bear on him by the defendant, entered into a new arrangement with them by which they were to take the stock, paying him $100,000, and paying the debt to Buckmiller, which then amounted to $92,000: that they actually paid Buckmiller but $66,000, and took an assignment of his trust deed, and paid him $42,500, entering into a new contract to pay $57,500 for 8,122 shares which they had not then accepted. That all this time the mine was paying one per cent. per month, and that these arrangements were for the advantage of the defendants, and forced by them on the plaintiff through the advantage they had obtained by his trust in them. He therefore asks that all these contracts be examined by a Court of Equity, and that the defendants be compelled to account to him as his trustees, for all they could have obtained had they acted in good faith by him.

On the other hand the defendants say, that they never asked him to entrust his business to them. That after he had done so they were unable to sell the stock at the price he desired; that they made every effort to do so; that the subsequent arrangement was a fair and honest one, and better for the plaintiff than he could have made except with them; that they did take the trust deed in their own name, but only to secure the plaintiff's performance of his contract, and as soon as that was done surrendered the notes and cancelled the deed; and that in everything they have acted with the greatest fairness towards the plaintiff.

Patent Claims.

Interesting to Miners, Millmen, Metallurgists, Oil-Men, and Others.

78,456.—FURNACE FOR ROASTING ORES.—Edward P. Hudson, New York City.

I claim forcing heated air or oxygen, in addition to the products of combustion, through ores, for the purpose of removing sulphur, phosphorus, and similar injurious substances therefrom, substantially as herein specified.

Also, the chamber or reservoir, a, below the bottom of the fire chambers or flues, with a passage or passages, b, at or near the base thereof, through which air is forced and heated by the roasted ores therein, and in turn cools the said ores ready for withdrawal, substantially as herein specified.

Also, introducing air, in excess of that required for combustion, but regulated by quantity, into the ores, through the fire-chambers, over the fires, so as to be heated thereby, before passing through the ores, substantially as herein specified.

Also, the arrangement of one fire chamber higher than the other, substantially as and for the purpose herein specified.

78,468.—ORE SEPARATOR.—R. C. Morton, West Lubeck, Me.

I claim, 1st, The series of lever or hinged plungers, C C' C'' C''', etc., acting upon the series of cells, D D' D'' D''', substantially as shown and described in combination with the corresponding compartment tray, H, all as and for the purpose set forth.

2d. The adjustable bars, s, substantially as shown and described, in combination with the rollers, d, and cams, e, of the shaft, b, all as and for the purpose set forth.

3d, The lever cocks, k, substantially as shown and described, in combination with the box, G, slide, E, and plungers, all substantially as shown and described and for the purpose set forth.

4th, The bar, A, rubber springs, j, plates, f, and lever plungers, all constructed and operating substantially as shown and described and for the purpose set forth.

5th, Tray, H, having partitions, u u u, substantially as shown and described, in combination with a series of plungers and a series of cells, D D' D'' D''', all as and for the purpose set forth.

78,577.—MANUFACTURE OF PLATES OF COMBINED STEEL AND IRON.—James Park, Jr., Pittsburg, Pa.

I claim giving a welding heat to the iron or fibrous metal side only of the ingots, in the manner hereinbefore described, and then uniting these surfaces by welding them together, either with or without an interposed layer of wrought iron or other fibrous and malleable metal, substantially as hereinbefore set forth.

78,760.—RETORT FOR CONCENTRATING SULPHURIC ACID.—J. D. Perrin and Joseph Saunders, Brooklyn, N. Y.

We claim providing a retort with a projecting pipe or spout, a, and with a pipe, B, substantially as described, so that communications between various retorts can be established, as herein specified.

78,786.—PROCESS OF COMBINING WROUGHT AND CAST METAL.—Edward L. Brown, Philadelphia, Pa.

1 claim, 1st. Preparing wrought metal for combining it with cast metal for castings of all descriptions, where great strength of any kind is required, by first thoroughly coating it, by galvanic action or other process, with nickel, or any other metal or metals, alloys of metals, or metallic or mineral substances, or their alloys, not easily oxidizable and very difficult to fuse, and which only melt, or whose point of fusion is at a higher degree of heat than the molten cast metal to be poured about it, the whole substantially as above described.

2d. The production of castings strengthened by the introduction of wrought metal coated with a metal, alloy of metals, or substance less fusible than the cast metal, substantially as above set forth.

Special Scientific Brevities.

☞ There is no absence of coal in the great West, out of which new States are being coined. In the Laramie plains the coal beds are from five to eleven feet in thickness, and occupy a basis of about five thousand square miles. In Colorado, along the Eastern base of the mountains, north of the Arkansas river, beds of solid lignite extend over many thousand miles of territory. They are the remains of extinct forests, and show that oaks, hickories, lindens, maples, buttonwoods, buckthorns, poplars, and magnolias, have flourished there. The beds are younger than the anthracite beds of Pennsylvania, belonging to the geological period immediately preceding the present. There is no other fuel of any kind, either under or above the surface, in the region where these beds are found.

☞ A patent has been taken out by Mr. W. Baker, of Tipton, England, for the manufacture of iron. His description states that in conducting the puddling process according to this invention, the cast-iron to be puddled is introduced into the bed of the furnace without any admixture of hammer slag, or flux, but the hammer slag, or other flux, is put into the part of the furnace situated beyond the flue ridge, where it becomes melted simultaneously, or nearly so, with the iron in the bed of the furnace, but is separated from the said iron. The puddler stirs the iron with his rabble, or puddling tool, until the evolution of gas from the melted iron has ceased, or nearly so, when the melted hammer slag, or flux, is admitted to the bed of the furnace. The melted iron and melted hammer slag, or flux, are then mixed or worked together, and the puddling is completed in the ordinary way.

☞ Professor Botger, inquiring into the cause of the action of distilled water on lead, has found it to be due to the presence of carbonate of ammonia, and not, as is usually ascribed, to the air dissolved in the water. After having been boiled for a time, distilled water will not attack the lead until after a considerable exposure, when a reabsorption of ammonia and carbonic acid from the air, where they are always present, may be supposed to have taken place. Botger has further found that the alloying of the lead with a small amount of tin protects the former from being acted upon, and this fact suggests the advantage of purposely introducing a little tin into the metal from which lead piping is to be manufactured.

☞ Copper and iron may be smelted together in almost all proportions, but it appears to be doubtful whether any homogeneous alloys can be produced. A small quantity of iron, added to bronze or brass, causes a considerable increase in tenacity. Malleable iron or steel, containing copper to the extent of 1·45 or 0·5 per cent., shows symptoms of red shortness, which become decided with a larger quantity.

☞ A one-horse power paper steamboat is being built at Ballston, N. Y.

Gudit about Minerals, &c.

☞ On the 11th, Marquette, Michigan, was visited by a terrific conflagration, which destroyed all the shops and stores in the town, all the Government, State, and Municipal buildings, the bank, the railroad depot, docks, machine shops, and several private residences. The loss to the Marquette and Bay de Noquet railway company cannot be less than $500 000. The total loss by the conflagration will reach at least $1,500,000—probably more. The insurance was comparatively small.

☞ The citizens of Nevada and California have organized a company to build a railroad from a point on the Central Pacific Railroad on Humboldt river, Eastern Nevada, to the head of navigation on Colorado river, connecting with the line of the Southern Pacific Railroad, with a capital stock of $1,500,000. The length of the road will be about two hundred and fifty miles.

☞ Scarcely a league from San Juan Teoutacihan, and two leagues from the City of Mexico, there exist the two colossal pyramids consecrated in former centuries to the worship of the Sun and Moon. They stand on a line almost parallel, and are less than a mile apart. Their elevation is said to be fully if not more than 450 feet.

☞ The mining engine intended to be run in the mines of the Lehigh Coal and Navigation Company, at Summit Hill, an account of which we gave a few weeks since, has proven itself, according to the Mauch Chunk *Democrat*, a complete failure. It has been re-shipped to the builders at Philadelphia.

☞ The Camden and Amboy Railroad company have ordered a thousand tons of steel rails from Sheffield, in England, which are now in process of delivery. More than a mile of these rails were laid near Bordenstown, on this road, about a year ago. These show no signs of wear as yet.

☞ Coal has been struck in Minonk, Woodford county, Ill., at a distance of 314 feet below the surface of the earth. The vein is four feet thick, and the coal of a superior quality.

☞ A San Francisco paper pronounces the Garrahan Quicksilver Land Claims, now before Congress, a fraud, and shows by the records that it has been so declared by the United States Courts in California.

☞ The Albertine Oil Works at St. John's, N. B., have suspended operations on account of the excise duty, and 300 hands have been thrown out of employment.

☞ During the month ending May 15th, the exports of rails from Cardiff, South Wales, to New York, were no less than 8,208 gross tons, and from Newport, 7,585 tons.

☞ A quicksilver mine has been discovered near Redwood, San Mateo county, Cal.

All Sorts.

☞ The Mineral Point (Wis.) *Tribune* reports two accidents by the caving in of mines. Mr. William Euhler was drifting in a shaft when the cap rock fell, burying him under it. He was dead before the rock could be removed. Strange to say, Mr. Euhler had a dream the night before the accident amounting to a presentiment of what followed. He was so impressed in his dream with the idea that he was being crushed with a rock, that he got out of bed while yet asleep, and called for some one to remove the rock which was crushing the life out of him. He related his dream to his wife on being roused from his sleep. She tried to prevail on him not to go to the diggings that day, but he remarked that it was only a dream, and promising to be careful, went to his work, and his dream was realized.

☞ It is a curious fact, that while seasons of destitution and distress tend to lower the number of births and marriages in a community, they also lower the death rate. The returns of the British registrar-general for the last quarter of 1867, shows that there were fewer births by 2,400 than in the corresponding quarter of 1866, while the deaths were 4,058 more in '66, when there was no distress. The same statistics hold good of marriages. And this is confirmatory of facts observed, but hardly credited, during the famine produced by scarcity of cotton and employment in England, showing that a period of privation is less fatal to life than a period of indulgence. Dieting seems to be good for masses as well as individuals.

☞ Mr. Frederic Harrison, in an essay on the Transit of Power in the London *Fortnightly Review* for April, tells this good anecdote. He was the other day exploring a coal mine, and chancing to ask some grimy bare colliers, hewing away in the dim air, what was that part of the workings, they told him with some pride that they called it the "Mill End," after the member for Westminster. A matter for thought, remarks Mr Harrison, that these rough hewers, groping all their night of days in those choking cells of coal, could be thinking of the author of a "System of Logic," and of the pamphlet on the "Condition of Ireland."

☞ An editor in Alabama having read an article in Hall's Journal of Health, advising that husband and wife should sleep in separate rooms, says: "Dr. Hall can sleep when and where he chooses, but for himself he intends to sleep where he can defend his wife against the rats and all other nocturnal foes as long as he has got one to defend."

☞ There are now three hundred men at work on the Dubuque and Sioux City railroad between Iowa Falls and Fort Dodge.

Special Notices.

Patents.

Mr. WILLIAM MCNAMARA publishes a card in another column, signifying his readiness and ability to secure patents on new inventions, and give advice thereon. He says he makes mining inventions a specialty, which should be an inducement to inventors in that line to give him their patronage. We wish Mr. MCNAMARA abundant success in his labors with the mining interest, with the belief that he is fully qualified by practical experience to redeem the good opinion we entertain of his ability to satisfy all that entrust their cases in his hands. His office is at No. 37 Park Row.

T. P. PEMBERTON,

MECHANICAL ENGINEER AND TEACHER OF

MECHANICAL DRAWING.

ROOMS No 15, 16, 17, at 37 PARK ROW, N. Y. City.

AA American A
NATURAL LUBRICATING OILS
A

PREPARED EXPRESSLY FOR ALL CLASSES OF MACHINERY.
DO NOT CHILL.
GUARANTEED FREE from GUM OR GRIT.

Endorsed by the leading MECHANICIANS and ARTISANS of the United States and Europe as the

BEST LUBRICATORS
IN USE.

☞ Send for Circulars. ☜

S. ST. JOHN, Agent,
Volcanic Oil and Coal Co.,
7 Broadway, New York.
Box 4781. may16-1y

63RD AUCTION SALE.

FORTY THOUSAND TONS SCRANTON COAL,

ON WEDNESDAY, JUNE 24, 1868.

NEW YORK, June 17, 1868.

The Delaware, Lackawanna & Western Railroad Company will sell, by MESSRS. JOHN H. DRAPER & Co., Auctioneers, at the Company's Salesroom, No. 26 Exchange Place, corner of William street, New York, on WEDNESDAY, June 24, at 12 o'clock, noon,

40,000 TONS

of Coal, from the Lackawanna Regions, of the usual sizes, deliverable at their Depot, Elizabethport, N. J., during the month of July, 1868.

The sale will be positive; each lot put up will be sold to the highest bidder; no bids, in any form whatever, being made for account of, or on behalf of the Company. The conditions will be fully made known at the time of sale.

TERMS: Fifty cents per ton, payable in current funds, on the day of sale, and the balance, within ten days thereafter, if required, at the Office of the Company.

SAMUEL SLOAN,
President.

EVERY FARMER SHOULD HAVE THE WORK!

"STERILITY IS LAID."

PROF. VILLE'S NEW SYSTEM OF AGRICULTURE.

AN ADDRESS BEFORE THE BEDFORD, N. H., FARMERS' CLUB, FEB. 28, 1868, by JOHN A. RIDDLE, Esq.

Published by request of Club. Price 25 cents.

For sale by WESTERN & CO.,
may23 tf 37 Park Row, New York.

THE COUPONS
OF THE
FIRST MOTGAGE BONDS
OF THE
UNION PACIFIC RAILROAD COMPANY,

DUE JULY 1st, 1868,

Will be paid on and after that date, IN GOLD COIN, FREE OF GOVERNMENT TAX, at the Company's office, No. 20 Nassau street, New York.

Schedules with twenty or more coupons, will now be received for examination, and gold checks for the same will be delivered June 30th.

je20:2t JOHN J. CISCO, Treasurer.

PLATINUM APPARATUS, SHEET, WIRE, etc., for all Laboratory and Manufacturing purposes. Platinum scrap and ore purchased.
H. M RAYNOR,
jan4:4m Office, No. 748 Broadway, N. Y.

507 ILLUSTRATIONS OF
MECHANICAL MOVEMENTS,
By HENRY T. BROWN, 189 Broadway, N. Y.
je20.1t

BUSH & GANT,

Wholesale and Retail Dealers in

HOUSE FURNISHING GOODS,

BUILDERS' HARDWARE,

WOOD, WILLOW, BRITTANIA AND PLATED WARE.

ALSO,

Universal Patent Wringers, Washing Machines,

PATENT BIRD AND ANIMAL CAGES, METAL TOP CHIMNEYS, AND SHINGLE BRACKETS.

N. D. BUSH,
P. O. Box, 5,969. B. E. GANT.
feb1:tf 429 Sixth Ave. Cor. 26th street.

TERWILLIGER & CO.,

MANUFACTURERS OF THE

IMPROVED TRIPLE FLANGE

Fire and Burglar Proof Safes,

With Combination and Powder-proof locks, warranted free from dampness.

VAULT DOORS AND BANKERS' SAFES

Made to order of our Patent welded Steel and Iron, and sold subject to test.

WARRANTED THE BEST IN THE WORLD.

Please call or send for illustrated catalogue.

TERWILLIGER & CO.,
PRINCIPAL DEPOT, 100 MAIDEN LANE, NEW YORK. feb 223m

M. BOTTICHER'S

PATENT ADJUSTABLE PRESSURE AND VACUUM

EAGLE GAUGE,

Can be furnished from 10 to 600 pounds pressure. The most simple and reliable Gauge in use.

Every Gauge warranted to give satisfaction. State rights for sale

Address, M. BOTTICHER,
nov 14:1y 264 Broad street, cor. Bank, Newark, N. J.

WIRE ROPE.

The Subscribers, agents for

GARNOCK, BIBBY & CO.'S

Celebrated Steel and Charcoal Wire Rope, for Mines, Inclined Planes, Bridges, Derricks, and Hoisting Purposes. Also Galvanized Charcoal and B. B. Rope for Ships' Standing Rigging, Stays, Guys, &c.

A large stock constantly on hand. Orders filled with dispatch. For further particulars as to price, test weight and working strain, apply for Mining Circular to

JOHN W MASON & CO.,
june29:1y 43 Broadway, N. Y

M. E. MEEKER,

MANUFACTURER AND JOBBER OF

ENGRAVINGS, CHROMOS,

PHOTOGRAPHS,

PICTURE FRAMES ALBUMS STEREOSCOPES, VIEWS, &c.

No. 106 NASSAU STREET, New York,

ONE DOOR FROM ANN STREET.

THE FUEL SAVING

FURNACE COMPANY,

No. 205 BROADWAY,

Jan. 1, '68-1y NEW YORK.

BRANCH OFFICE.—MESSRS. M. A. LATHROP have been appointed our sole agents in the New England States for the AMERICAN JOURNAL OF MINING and our Spanish paper EL CORREO HISPANO-AMERICANO. Their address is 11 Court street, Boston, Mass., where all information respecting communications, subscriptions and advertisements for these papers will be gladly given to those who may wish to favor us with their patronage.

WILLIAM F. MCNAMARA,

COUNSELLOR-AT-LAW AND PATENT ATTORNEY.

Special attention given to soliciting of Patents for mining inventions. Al advice given in regard to Patents.

je20:1t 37 PARK ROW, New York.

CONTRACTORS, QUARRYMEN and MINERS engaged in blasting Rock can save from FOUR to TEN DOLLARS per day by using WEILER'S PATENT PORTABLE ROCK DRILLING MACHINE, which, with one man to operate it, will do more work than three men. Address WEILER & DUFFORD, Washington, N. J. may23

METALLURGY.

ANDREWS'

PATENT ENGINES, BOILERS, PUMPS and HOISTERS.

OSCILLATING ENGINES, run at great speed. Sizes ½ to 250 Horse-Power.

SMOKE-BURNING AND SUPER-HEATING BOILERS are Economical and Safe.

CENTRIFUGAL PUMPS, pass Sand, Coal, Corn, Gravel, &c., without injury. Capacity 90 to 40,000 gal.s. per minute.

HOISTING MACHINES, run without noise; speed changed or reversed instantaneously.

All Compact, Light and Durable.

Address manufacturers, WM. D. ANDREWS & BRO.,
May30 No. 414 Water street.

BENJAMIN SMITH LYMAN,

MINING ENGINEER,

GEOLOGIST AND TOPOGRAPHER,

No. 135 South Fifth Street, Philadelphia.

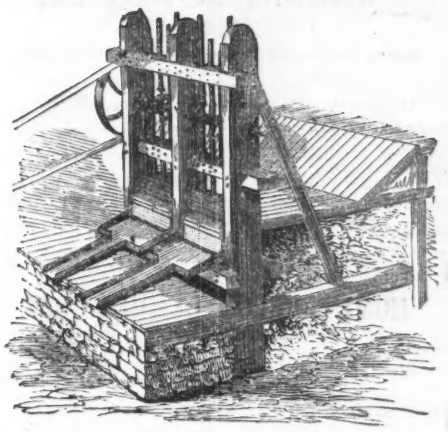
WM. M. GABB, late member of the Geological Survey of California, offers his professional services to the mining public, especially in connection with Gold and Silver mining. No. 138 Walnut street, Philadelphia. ap4·1f

METALLURGY.

MOREY, SPERRY, & CO.,

MANUFACTURERS OF

ALL KINDS OF MINING MACHINERY.



CALIFORNIA STAMP MILLS,

WITH WOOD FRAMES.

Wheeler, Randall & Sperry's Iron Batteries,

WHEELER & RANDALL'S

PATENT EXCELSIOR GRINDER & AMALGAMATOR,

THE BEST IN USE.

HEPBURN & PETERSON'S

PATENT PAN AND SEPARATOR.

WHEELER & RANDALL'S

Patent Conoidal Separator, with Latest Improvements.

WHEELER & RANDALL'S PATENT CONCENTRATOR,

With Z Wheeler's Patent Self-Discharging Quicksilver Apparatus. This machine is an entire success.

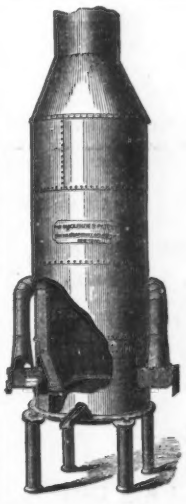
Rock Breakers, Engines, Boilers, Shafting, &c., &c. Furnaces. Shoes and Dies of the best White Iron. Retorts for Gold and Silver. Also furnish all kinds of mining supplies. Prof. Wurtz's Sodium Amalgam. Nitrate of Mercury (application patented by Henry Brevoort, Esq.), &c.

Will also furnish complete Plans and Specifications for Mills, Machinery and Buildings, and give practical information in Mining, Milling, Amalgamating and Concentrating Gold and Silver Ores.

Agents for H. J. BOOTH & Co., San Francisco, also for Miners' Foundry, San Francisco.

MOREY, SPERRY & CO.,
95 Liberty street, New York.

F. MORFY. J. A. SPERRY. P. M. RANDALL,
may9 Of Wheeler & Randall, San Francisco.



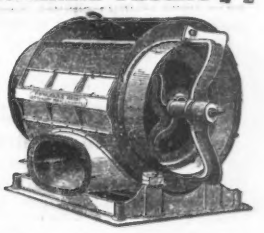
SMITH & SAYRE

MANUFACTURING COMPANY,

PROPRIETORS AND MANUFACTURERS

OF THE

MACKENZIE PATENT



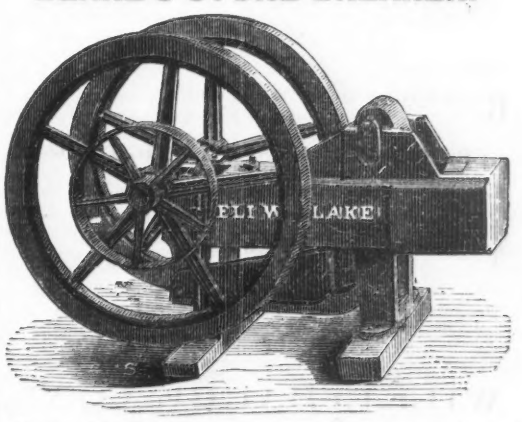
BLOWER and CUPOLA and SMELTING FURNACE.

Also, Mackenzie's Patent GAS EXHAUSTER and COMPENSATOR. Address

SMITH & SAYRE MANUFACTURING COMPANY.
95 Liberty street, N. Y.

Send for illustrated pamphlet. mar26

BLAKE'S STONE BREAKER.



The office of this Machine is to break Ores and Minerals of every kind into small fragments, preparatory to their further comminution by other machinery.

The machine has now been in use, enduring the severest tests, for the last ten years, during which time it has been introduced into almost every country on the globe, and is everywhere received with great and increasing favor as a labor saving machine of the first order.

Illustrated circulars, fully describing the machine, with ample testimonials to its efficiency and utility, will be furnished on application, by letter, to the undersigned.

☞ The Patents obtained for this machine in the United States and in England having been fully sustained by the courts, after well contested suits in both countries, all persons are hereby cautioned not to violate them: and they are informed that every machine now in use or offered for sale, not made by us, in which the ores are crushed between upright convergent faces or jaws actuated by a revolving shaft and fly wheel, are made and used in violation of our patent.

BLAKE, BROTHERS,
mar14-1y 351 New Haven, Conn.

ASSAY FURNACES.—Pietsch's Improved Kent's Universal Furnace for melting ores, cupelling and distilling. Light and durable, and all that is desired for the laboratory or for dentists' use. Cupel moulds, tongs, and Iron Retorts of all sizes. Address HERMAN PIETSCH, manufacturer of Chemical Apparatus, 185 Delancey street, N. Y. Reference, EDWARD N. KENT, Chemist, 14th street, formerly melter and refiner at the U. S. Assay Office. ap4:3m

COAL DEALERS & SHIPPERS.

WHITE, FOWLER & SNOW,

Successors to JOHN WHITE & CO.,

Wilkesbarre and Lehigh Coal,

FOR STEAM AND FAMILY USE.

OFFICE,

Room No. 75, 111 Broadway, (Trinity Building).

JNO. WHITE. LINDLEY H. FOWLER dec30 LOUIS T. SNOW.

ENGLISH COAL AND CANNEL.

DESPARD COAL, from Baltimore,

PROVINCIAL COAL,

ANTHRACITE COAL,

For Sale in Lots to suit.

PARMELE BROS.,

AGENCY OF GEORGE WRIGHT & CO., LIVERPCOL,

Office, No. 32 PINE STREET, NEW YORK.

dec30:66:67 Yard, West 22d Street, near 10th Avenue.

HONEY BROOK COAL COMPANY,

Exclusive Miners and Shippers of the Celebrated

HONEY BROOK LEHIGH COAL,

NO. 111 BROADWAY, NEW YORK.

JAS. H. LYLES, Agent.

Wharves, Port Johnston, N. J. Philadelphia Office, 209 Walnut street.

ap20:1y J. B. McCREARY, President.

HECKSCHER, BOWNS & CO.,

NO. 111 BROADWAY,

(TRINITY BUILDING), ROOM 79, NEW YORK CITY.

Wholesale dealers in the best qualities

ANTHRACITE AND BITUMINOUS COAL.

Agents for the celebrated "HARTFORD ASSOCIATED COAL COMPANY'S" COAL.

Wharves: Pier No. 4, Port Richmond, Philadelphia; foot 20th street, East River. vol2:6qp

---

CALDWELL, GORDON & CO.,

WHOLESALE DEALERS IN

ANTHRACITE AND BITUMINOUS COAL.

HENRY HEIL'S

CELEBRATED EAST FRANKLIN COAL,

NO. 35 PINE STREET, NEW YORK.

S. CALDWELL, JR. F. A. HALL, N. P. GORDON, S. B. YOUNG

BOSTON, Office 144 State St. PHILADELPHIA, 112 Walnut St.

jan6:1f

DAY, HUDDELL & CO.,

MINERS AND SHIPPERS OF

HARLEIGH LEHIGH COAL,

And the Celebrated

HICKORY, BROAD MOUNTAIN, EXCELSIOR, SHAMOKIN AND NEW ENGLAND RED ASH.

OFFICES:

Room 51, TRINITY BUILDING, 111 Broadway.

Philadelphia, 109 WALNUT STREET. **Boston,** 7 DOANE STREET.

ap20 :1y

LEWIS AUDENRIED & CO.,

Miners and Shippers of

CELEBRATED ANTHRACITE COALS,

Diamond Vein and Locust Mountain.

FROM PHILADELPHIA AND THE MINES, ELIZABETHPORT AND JERSEY CITY

Also, superior CUMBERLAND COALS.

205 Walnut street, PHILA. 14 Kilby street, BOSTON.

20 Westminster street, PROV. 24 Second street, BALTIMORE

27-tf 110 BROADWAY, NEW YORK.

NEW BOSTON COAL MINING COMPANY,

Office, No. 55 Broadway, New York.

Miners and Shippers of Superior

BUCK MOUNTAIN COAL,

Deliverable at Elizabethport and the Harbour of New York. Supplied to Steamers, Dealers and Manufacturers at market rates.

F. H. DELANO, Treasurer. dec28:67-68 G. WAYLAND, Sales Agent

COXE BRO.'S & CO.

CROSS CREEK COLLIEY,

MINERS AND SHIPPERS

of the Celebrated Cross Creek

Free Burning Lehigh Red Ash Coal

FROM THE BUCK MOUNTAIN VEIN

OFFICES:

Philadelphia, No. 341 Walnut Street. Agent in New York

Drifton, Jeddo P. O. Luzerne, Co., Pa.

SAMUEL BONNELL, Jr., Room 43, Trinity Building, 111 Broadway.

feb. 1-1 yr

RANDOLPH BROTHERS,

SOLE AGENTS OF THE ORIGINAL

SPRING MOUNTAIN LEHIGH COAL,

Extensively Used for Smelting Iron.

ROOMS, 28 AND 30 TRINITY BUILDING, NEW YORK au16tf

ASHBURTON COAL CO.,

MINERS AND SHIPPERS OF

'LEHIGH COAL,

Delivered direct from the mines, or for resnipment at Port Johnston

LOUIS J. BELLONI, Jr., Pres't.

ap4 qp OFFICE, No. 41 PINE STREET, NEWYORK.

WILKESBARRE COAL,

DELIVERED DIRECT FROM THE MINES OF

The Wilkesbarre Coal and Iron Company,

OR, FOR RESHIPMENT AT

HOBOKEN AND JERSEY CITY.

OFFICE—No. 16 WALL STREET, NEW YORK

mar14-1y

THE DESPARD COAL COMPANY

OFFER THEIR SUPERIOR

DESPARD COAL

To Gas Light Companies throughout the country.

MINES IN HARRISON COUNTY, West Virginia.

WHARVES LOCUST POINT, } Baltimore.

COMPANY'S OFFICE No. 29 South street, }

Agents, PARMLEE BROTHERS, No. 32 Pine street, New York.

BANGS & HORTON, No. 31 Doane street, Boston.

Among the consumers of Despard Coal we name: Manhattan Gas Light Company, New York; Metropolitan Gas Light Co., New York; Jersey City Gas Light Co., Jersey City, N. J.; Washington Gas Light Co., Washington, D. C.; Portland Gas Light Co., Portland, Maine

☞ Reference to them is requested. May 30

THE WESTMORELAND COAL COMP'Y

OFFER THEIR SUPERIOR QUALITY OF

BITUMINOUS COAL

To Gas Companies,

Railroad Corporations,

And Manufacturers of

IRON AND STEEL.

More than two millions of tons of their Coal have been distributed through the New England and Middle States, and its character is established in the market as having no superior in quality.

PLACE OF SHIPMENT—Pier No. 3, Greenwich Wharves, Delaware River.

OFFICE—No. 230 South Third street, Philadelphia.

EDWARD C. BIDDLE, President.

FRANCIS H. JACKSON, Sec'y and Treas'r. Ap18:6mo.

C. B. LINDERMAN & CO.,

MINERS,

SUGAR LOAF,

LEHIGH COAL.

OFFICE:

50 TRINITY BUILDING,

may23:1y 111 BROADWAY, N. Y.

SAMUEL BONNELL, JR.,

OFFERS FOR SALE HIS

SUGAR CREEK

AND

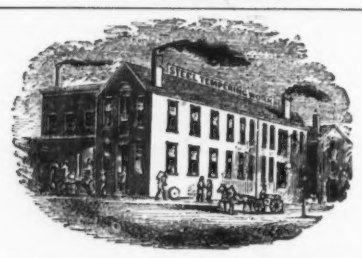
HONEY BROOK

LEHIGH COALS,

OFFICE: 43 and 45 "TRINITY BUILDING," 111 BROADWAY,

New York.

IRON DEALERS.



CLOVER LEAF PLANE IRONS.

MANUFACTURED EXCLUSIVELY BY US, UNDER

REYNOLDS' PATENTS

for tempering steel, possesses the following superior qualities:

1. They are tempered the same in the centre as at the edges.
2. They hold a fine cutlery temper until the iron is worn out.
3. There are no soft spots in them.
4. One of these Irons will outwear four to five Irons tempered the old way.
5. They are sold at the same price of other Irons.
6. Every Iron is warranted to possess the above qualities or no sale.

We hereby authorize all Hardware Dealers to allow their customers to try our Irons, and if not perfectly satisfactory, refund price paid and charge Irons back to us.

Every PLANE IRON made by us bears our

CLOVER LEAF TRADE MARK

REYNOLDS, BARBER & CO.,

STEEL TEMPERING WORKS,

mar21-3m-eow Auburn, N. Y.

SLATE DEALERS.

HUDSON RIVER SLATE COMPANY,

25 PARK ROW, NEW YORK,

Supply from their Quarries

SUPERIOR BLUE SLATE,

IN

ASHLER BUILDING FRONTS,	MANTLES & MANTLE STOCK,
HOUSE TILES, of all sizes,	SLABS of any dimensions,
FLAGGING TILES, of any large size,	HEARTHS, of all sizes,
PLAIN FLAGGING of any thickness,	SLATE DUST,
CURBING, plain and fancy,	BILLIARD BEDS,
COUNTERS & COUNTER TOPS,	SILLS and LINTELS,
WAINSCOTING & PANELING SLABS for MARBLEIZING, of any size ordered,	SINKS,
	CEMENTERY STOCK,
	SLAB ROOFING.

Any Articles Marbleized to Order in the Most Superior Style.

☞ All orders and communications should be addressed to

ABRAHAM BELL'S SON,

Nov 23,qx.m 25 Park Row, New York

JOHN GALT,

WHOLESALE DEALER IN ROOFING SLATE.

SOLE AGENT FOR THE

EAGLE SLATE COMPANY OF VERMONT,

Who produce Purple, Green and Red ROOFING SLATE. Sole Agent for New York and the West for the

CHAPMAN SLATE COMPANY OF PENNSYLVANIA,

Who produce a Superior Black or Dark Blue Slate; also Sole Agent for New York and the West for the

LEHIGH SLATE COMPANY OF PENNSYLVANIA.

GENERAL DEPOT,

Cor. Tenth Avenue and Twelfth Street, N. Y. City.

Established in 1850.

BRANCH DEPOTS:

Buffalo: Jas. W. Chapman, Terrace Square.

Chicago: James Parker, corner Franklin and Washington Streets.

Charleston S. C.: C. J. Demorest, East Bay, near Wentworth Street.

New Orleans: J. J. Lee, 368 Magazine Street.

☞ I am prepared to give parties the prices of Slate delivered throughout the United States at the Railroad Station.

Orders by mail will receive prompt attention. jan1:1y

PORTABLE STEAM ENGINES,

COMBINING THE MAXIMUM OF

EFFICIENCY, DURABILITY AND ECONOMY,

with the minimum of weight and price. They are widely and favorably known, more than SIX HUNDRED being in use. All warranted satisfactory or no sale Descriptive circulars sent on application. Address

may10-67:6m J. C. HOADLEY & Co., Lawrence Mass

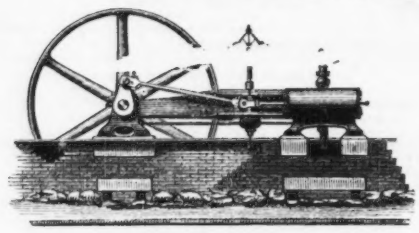
MACHINERY.

SOUTH BROOKLYN

Steam Engine and Boiler Works,

ON IMLAY, SUMMIT AND VAN BRUNT STREETS, BROOKLYN, N. Y

D. McLEOD, Proprietor



Manufactory of the

"Babcock & Wilcox Patent Steam Engines,"

high and low pressure, for Stationary and Marine purposes, up to the largest class. Orders for the above Engines, and for BOILERS, IRON and BRASS CASTINGS, COPPERSMITH WORK, FORGINGS and HEAVY MACHINERY of all descriptions (for which this establishment has unsurpassed facilities), executes promptly, at moderate prices.

The BABCOCK & WILCOX Patent Engines combine the simplest and most durable Valve Gear, the greatest range of cut off, perfect regularity of speed and the highest economy of fuel. The cylinders are jacketed with live steam, and all the parts are designed and constructed with reference to the greatest durability and smoothness of action. They are daily gaining in popularity, and are superseding the best cut-off Engines heretofore built, with a saving of from twenty-five to forty per cent. in fuel.

Send for circulars, containing full description. Address

D. McLEOD, Box 2993 New York P. O.,

doc27.67:1y Or at the Works in Brooklyn

TODD & RAFFERTY,

GENERAL

Machinery Merchants, Engineers and Machinists.

Manufacturers of Stationary and Portable Steam Engines and Boilers; also Flax, Hemp, Tow, Oakum, and

ROPE MACHINERY, MILL GEARING, SHAFTING,

Lathes, Planers, Drills, Chucks, &c., Iron and Brass Castings. Judson's & Snow's Patent Governors constantly on hand.

OFFICE AND WAREROOMS, NO. 4 DEY ST, N. Y.

Office and Works, Paterson, N. J.

JOSEPH C. TODD, ap27:6m PHILIP RAFFERTY.

PORTABLE AND STATIONARY

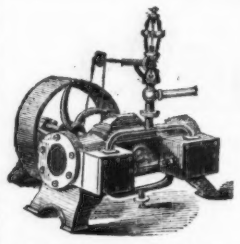
STEAM ENGINES.

Boilers, Circular Saw Mills, Mill Work, Cotton Gins, Cotton Gin Materials,

Manufactured by the

ALBERTSON & DOUGLASS MACHINE COMPANY,

NEW LONDON, CONN. mar16:1y



ALL IN SEARCH OF ENGINES SHOULD EXAMINE

"THE RUDDICK,"

The most compact, simplest and CHEAPEST

in the world.

DEVEREUX, THOMPSON & CO.

82 Cedar Street, N. Y.,

or

A. F. DEVEREUX & Co, Boston,

Sole Manufacturers.

nov29:1y

No Experiment. Old approved methods in all its parts.

THE WATSON MANUFACTURING COMPANY

RAILROAD AVENUE, OPPOSITE ERIE RAILWAY STATION,

MACHINISTS AND MILLWRIGHTS,

PATERSON, N. J.

Water Wheels, Heavy Gearing, Shafting, Pullies, etc

ALSO, PORTABLE ENGINES.

And all kinds of Machinery for Oil Wheels, etc.

Rolling Mills, Steam Engines, Hydraulic and other Presses,

LATHES, PLANING AND SCREWING MACHINES,

And Tools in general. Iron and Brass Castings, of all sizes and descriptions Patterns made to order. Also, manufacturers of the

Improved Turbine Water Wheel.

oct.12, 67 1 y.

THE NOVELTY IRON WORKS.

Foot East 12th, 13th and 14th Streets.

BRANCH OFFICE.....79 Liberty street

MANUFACTURE

Steam Engines and Boilers,

Cotton, Sugar and Rice Machinery

of the most improved kinds And kinds of

Brass and Copper Work,

Indicators, Clocks, Steam Gauges, Gauge Cocks, &c.

Large stock of patterns of SPUR, BEVEL and MITRE WHEELS, PULLIES and all sorts of MILL WORK feb1 1y

---

HEWES & PHILLIPS,

IRON WORKS,

Corner Orange and Ogden Streets, Newark, N. J.

Manufacturers of the most improved

HIGH AND LOW PRESSURE, STATIONARY, PORTABLE AND MARINE

STEAM ENGINES AND BOILERS,

MACHINISTS' TOOLS OF ALL DESCRIPTIONS, and ALL KINDS OF GENERAL MACHINERY.

Large assortment of Steam Engines and Machinists' Tools constantly on hand. je13.6m

---

CAMPBELL, WHITTIER & CO.,

MANUFACTURERS OF

STEAM ENGINES, BOILERS, STAMP MILLS,

MINING MACHINERY,

and MACHINERY IN GENERAL.

Sole Agents and Manufacturers of

MILLER'S PATENT SAFETY ELEVATORS

or Factories, Stores, Machine Shops, Warehouses, Freight Depots, &c.

BOSTON, MASS.

J. RUSSELL CAMPBELL. CHARLES WHITTIER. HENRY H. M'BURNEY.

jan25:6m

MISCELLANEOUS.

STEPHEN J. GEOGHEGAN & CO.

(Successors to Cameron & Geoghegan,)
199 & 201 Centre Street, N.Y.,
Adjoining Earle's Hotel.
MANUFACTURERS AND DEALERS IN
Wrought and Cast Iron Steam Pipes, Valves, Cocks, Fittings, &c.
FOR STEAM, WATER, AND GAS.
Also,
High and Low Pressure Steam Heating Apparatus applied to
FACTORIES, PUBLIC BUILDINGS, STORES AND DWELLINGS.
Manufacturers and Sole Agents for
STORER'S PATENT LUBRICATORS,
for supplying lubricating matter in bulk to the cylinders of Marine and Stationery Steam Engines, Steam Pumps, Heaters, Steam Traps, Pipe Tongs, Pipes, Vices, Stocks and Dyes, &c., &c.
We make Steam and Gas Fitter's tools a speciality.
Coils for Breweries, Distilleries, Soap Factories, &c., &c
STEAM PUMPS.
Send for Illustrated Circular. f:17-1y

SUBSCRIBE FOR AND ADVERTISE IN THE
AMERICAN JOURNAL OF MINING,
THE BEST AND LARGEST PAPER OF THE KIND IN THE UNITED STATES, NOW IN ITS THIRD YEAR.

The AMERICAN JOURNAL OF MINING is the only paper in the United States that represents *all* the various mining interests of the country in a complete, satisfactory, and trustworthy manner. It should therefore be in the hands of *every one* who desires to be informed upon, and hence able to profit by a knowledge of the subjects of which it treats, viz.: our vast mineral resources, and the best methods, direct and indirect, by means of which they may become an unfailing source of individual and national wealth.
Published every Saturday in New York City. Only $4 a year.

SPECIAL AGENTS AUTHORIZED TO RECEIVE SUBSCRIPTIONS AND ADVERTISEMENTS.
MASSACHUSETTS.—M. A. LATHROP & BRO. 11 Court street, Boston.
MICHIGAN.—J. W. CROZER, Ontonagon.
MONTANA.—WILLIAM Y. LOVELL, Virginia City.
NEVADA.—J. D. EMERSLEY, Austin.
COLORADO.—GEO. TRITCH, Denver City.
CALIFORNIA.—W. E. LOOMIS, San Francisco.
PENNSYLVANIA.—T. R CALLENDER, cor. 3rd and Walnut streets, Philadelphia, W. H. DAVIS, Easton, Pa.
ENGLAND.—FREDERICK ALGAR, 11 Clements Lane, Lombard street, London.
MEXICO.—JAMES SULLIVAN, City of Mexico, JUAN CARREDANO, Vera Cruz, JACINTO QUIROS, Acapulco.
SOUTH AMERICA.—COLVILLE DAWSON & Co., 271 Calle de la Union, Lima, Peru.
M. NAVARRO DE VILLALBA, Rio de Janeiro, Brazil, LUCIEN HILO, Buenos Ayres, Argentine Republic.
CUBA.—THOS. W. WILSON, Havana.
Mr. T. P. PEMBERTON is editor of the Mechanical Department and agent for the AMERICAN JOURNAL OF MINING.
DEALERS AGENTS.
THE AMERICAN NEWS COMPANY, 121 Nassau street, N. Y
THE NEW YORK NEWS CO., 10 Spruce street, N. Y.

WALTONS & LEONARD,
MACHINISTS' AND RAILROAD SUPPLIES,
METALS, TOOLS AND HARDWARE,
No. 58 John Street, New York.
AGENTS FOR THE SALE OF
American Bolt Co.'s Bolt, Nut Washers, &c.
Sturtevant, Pressure Blowers, Taft's Smith's Shears,
Packer's and Walworth's Ratchets, Harrington's Patent Tuyere,
Patent Differential Pulleys, Green Works, Patent Wrenches,
Dudgeon's Patent Hydraulic Jacks and Tube Expanders,
Dixon's Crucibles, Wellington Mills Emery and Emery Cloth,
Iron Pulley, Blocks, Twist Drills, Portable Forges, &c.
AND A LARGE ASSORTMENT OF
Stub's Tools and Files and Supplies for Railroads, Engineers, Manufacturers and Machinists.
W. M. WALTON. JOS. J. WALTON. O. W LEONARD
dec12:1y

FRANK B. POLLEY & CO.,
ENGINEERS AND MACHINISTS,
277 & 279 First street, Brooklyn, New York.
Manufacturer of
HIGH AND LOW PRESSURE STEAM ENGINES,
PORTABLE AND HOISTING ENGINES,
Also,
ROSS PATENT BURR STONE GRINDING MILL.
FRANK B. POLLEY. EDWD. W. CLARKSON,
Send for Circular. jan2:1y.q

CLINTON IRON FOUNDRY,
502 and 504 WATER, and 239 and 241 CHERRY STREETS,
Between Pike and Rutgers Slips, New York.
LEADER PIPES,
PULLYS, HANGERS,
GRATE BARS,
MACHINERY PATTERNS of all kinds,
Also,
LOAM AND DRY SAND CASTINGS
of every description, for mining purposes, made to order at the shortest notice and on reasonable terms.
W. McKINLEY oct 26-6m R SMACK.

ATLANTIC
STEAM ENGINE WORKS,
IRON AND BRASS FOUNDERS.
MANUFACTURERS OF
Steam Engines, Boilers, Sugar Mills, Tanks, Linseed and Cotton seed Oil Presses, and Machinery used in the Arts and Manufactures.
CORNER WATER AND ADAMS STREETS, BROOKLYN, N. Y.
R. B. DUYCKINCK, Treas. jan13:1y **WM. ARTHUR, Pres.**

BULLARD & PARSONS,
HARTFORD, CONN.,
Manufacturers of
IMPROVED UPRIGHT DRILLS,
with friction feed. This tool can be used with equal facility for light drilling or heavy boring—is particularly adapted to railroad, locomotive, steam engine, and general machine shops. We also make first class Shafting, and Mill Work, from a great variety of new and improved patterns. We furnish with our shafting, patent self-oiling boxes and friction couplings. Special machinery to order. Send for cut and price list July 6q p a. 6t.

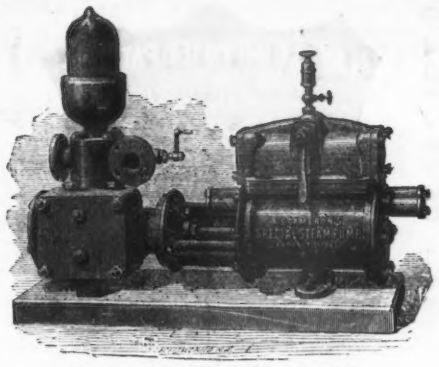
ATTENTION, ENGINEERS, MINERS, QUARRYMEN. LAMSON'S PATENT STONE CHANNELING MACHINE, for quarrying Marble, Slate, Grindstone, Sandstone, and other rocks: does the work of 75 to 100 men per day; can be seen in the quarries at Rutland, Vt., or at the Company's works.
CASE'S PATENT DIAMOND ROCK DRILL; is pointed with black diamonds; is adjusted and operated by one man; bores in any direction, or under water; bores in Marble 8 inches, in Granite 5 inches, in Quartz 3 inches, in Talc 6 inches per minute. One drill-head has bored over 2,000 feet without repair, and is still perfect. Address THE WINDSOR M'F'G CO., Windsor, Vt. Arrangements made for manufacturing any new Patent Machines. apl18-6m

---

INCRUSTATION OF STEAM BOILERS PREVENTED by WINANS' BOILER POWDER, 11 Wall street, New York
T. S. POST & Co., Benham, Texas, say: "We were burning *two* cords of wood daily; put in a dose of Winans' Powder, and found less fuel necessary each day, until at the end of the week we used less than *one* cord per day, and had better steam than formerly. This may seem incredible to those who have not used these Powders, but we are willing to make oath to the fact. We would not be without the article for ten times its value." mar.21 tf.

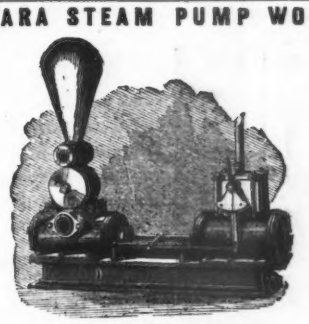
STEAM PUMPS.

STEAM PUMPS IN EVERY POSSIBLE VARIETY.



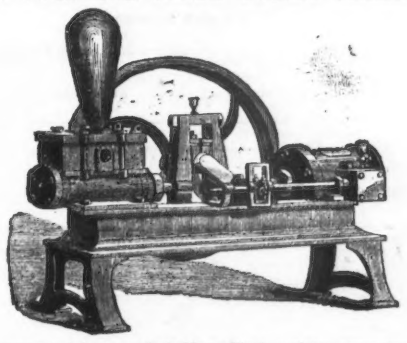
A. S. CAMERON & CO.,
22ND STREET, CORNER OF 2ND AVENUE, N. Y
feb22-6m

NIAGARA STEAM PUMP WORKS



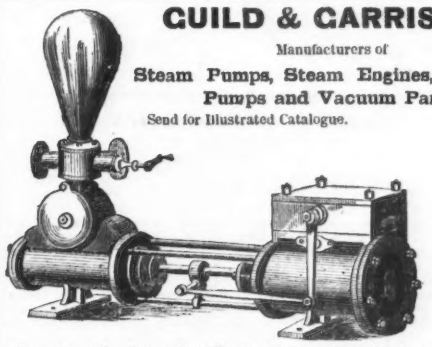
First Premium AT FAIR. American Institute. 1867.
HARDICK BROTHERS,
SUCCESSORS TO
CAMPBELL & HARDICK, BROTHERS,
No. 9 ADAMS STREET, BROOKLYN, N. Y.
Send for circular. f13-6m

J. CLAYTON'S
Patent Steam Pumps,
HAND PUMP AND STEAM ENGINE COMBINED.



These pumps contain every desirable quality in a steam pump, are made of the best material, and in the best manner, and are the cheapest first-class pumps in the market. For cut and description see JOURNAL OF MINING, No. 18, Vol. I. Please send for circular.
All sizes of pumps made to order at the shortest notice.
nov18-tf JAMES CLAYTON, 102 Front street, Brooklyn, N. Y.

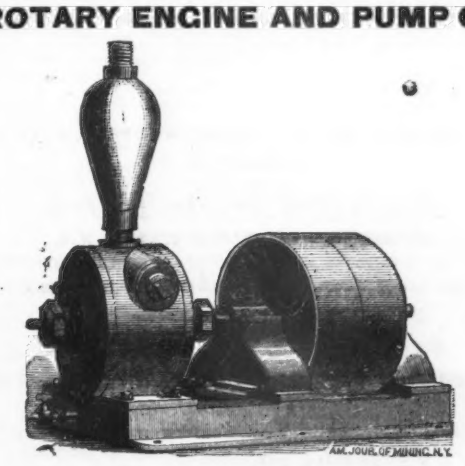
CUILD & CARRISON,
Manufacturers of
Steam Pumps, Steam Engines, Vacuum Pumps and Vacuum Pans.
Send for Illustrated Catalogue.



For sale at the STEAM PUMP WORKS, 26, 28 and 30 First street, Williamsburgh, N. Y. jan1-6m

---

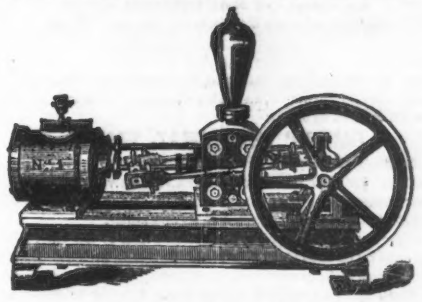
ROTARY ENGINE AND PUMP Co.



METROPOLITAN PATENT
The best and most effective Steam and Belt Pump adapted for general use. Warranted to form a vacuum of 28 inches. Mine owners should call and examine it as a MINING PUMP.
Offices of the Company, No. 181 PEARL STREET, Room 10, and No. 14 Second Avenue. Send for Circular. june18-1y

STEAM PUMPS.

THE WOODWARD
STEAM PUMP MANUFACTURING COMPANY,
MANUFACTURERS OF THE
WOODWARD PATENT IMPROVED SAFETY



STEAM PUMP AND FIRE ENGINE.
STEAM, WATER, AND GAS FITTINGS OF ALL KINDS.
Also, dealers in WROUGHT IRON PIPE, BOILER TUBES, etc. Hotels Churches, Factories and Public Buildings, Heated by Steam. Low Pressure Woodward Building, 76 and 78 Centre street, corner of Worth street, New York. Formerly of 77 Beekman street.
m14:1y GEO. M. WOODWARD, President.

HYDRAULIC WORKS,
MANUFACTORY,
BROOKLYN, N. Y
Steam Pumping Engines, Single and Duplex, Worthington's Patent, for all purposes, such as Water Works Engines, Condensing or Non-condensing; Air and Circulating Pumps, for Marine Engines; Blowing Engines; Vacuum Pumps Stationary and Portable Steam Fire Engines Boiler Feed Pumps, Wrecking Pumps
Mining Pumps,
Water Meters, Oil Meters; Water Pressure Engines; Stamp Mills for Gold, Silver and Copper Ore; Eaton's Patent Amalgamators for Gold and Silver Steam and Gas Pipe, Valves, Fittings, &c.; Iron and Brass Castings.
Send for Circular. H. R. WORTHINGTON,
Feb1:1y 61 Beekman street, New York.

THE
POSITIVE STEAM PUMP,
WILLIAM HARSEN,
PATENTEE AND MANUFACTURER, GREENPOINT, L. I.
Costs one-third less than any other First-Class Pump of the same Capacity
Send for Circular to
J. W. COLE,
MANUFACTURER'S AGENT, at CARR'S, 45 Courtland Street,
nov2 1y q

IVES' PATENT LAMPS,
Give a better and cheaper light than GAS, can be lighted, filled, and trimmed without removing shade, globe or chimney, or unscrewing the burner. We make a speciality of furnishing
SAFE STATIONARY LIGHTS
(in place of those that are movable and dangerous)
AND
PURE, NON-EXPLOSIVE OIL,
In place of Lad, unsafe Kerosene commonly used.
Every barrel received from us, with our brand on the head, can be relied on as
PERFECTLY SAFE.
Present price (in barrels), 16 cents per gallon.
Shipped in "hermetically tight" barrels of 44 to 48 gallons, ONLY on receipt of
CASH, WITH THE ORDER.
JULIUS IVES & CO.,
mar7:3m No. 49 Maiden Lane, N. Y.

GUNPOWDER SUPERSEDED.
Explosions and accidents from this time counted among the things that were Quarrymen and miners, hunters and soldiers use only
NEUMEYER'S PATENT SAFETY POWDER.
Now in universal use for blasting and mining purposes in England, France and Germany. You can handle and ship this powder with no more danger than you handle oil, sulphur, or charcoal. To explode it has to be confined and ignited by means of a fuse. One feature that specially recommends its use in mines and confined places is that very little smoke results from its combustion, and this smoke is very light, and not at all injurious to the lungs.
NEUMEYER & NIESE, ST. LOUIS, MO,
Are the Patentees and sole manufacturers for the United States One general agent wanted for each State. For further particulars address.
july6-67 67 NEUMEYER & NIESE, No. 9 South Third street, St. Louis.

B. KREISCHER,
NEW YORK FIRE BRICK
AND
Staten Island
CLAY RETORT WORKS.
ESTABLISHED 1845.
OFFICE, 58 GOERCK STREET,
CORNER DELANCEY ST., EAST RIVER,
mar28:1y:q NEW YORK.

SCOVILL MANUFACTURING COMPANY.
MANUFACTURERS OF
SHEET BRASS, GERMAN SILVER,
PLATED METAL, BRASS BUTT HINGES,
Gilt, Lasting, Brocade and Fancy Dress Buttons, Kerosene Oil Burners, and Lamp Trimmings,
And Importers and Dealers in every description of
PHOTOGRAPHIC GOODS,
No. 4 Beekman street and 36 Park Row, New York.
Manufactory, Waterbury, Ct. mar.21 :6m.

E. & H. T. ANTHONY & CO.,
501 Broadway, New York.
Manufacturers of Photographic Materials and Albums,
EXTENSIVE DEALERS IN AND MANUFACTURERS OF STEREOSCOPES AND VIEWS.
Feb 1.1y

OTIS, BROTHERS & CO.,
SAFETY HOISTING MACHINERY,
feb15:6m 309 BROADWAY, N. Y. CITY.

MISCELLANEOUS.

600 MILES
OF THE
UNION PACIFIC RAILROAD

Are now finished and in operation. Sixty miles of track have been laid this spring, and the work along the whole line between the Atlantic and Pacific States is being pushed forward more rapidly than ever before. More than twenty thousand men are employed, and it is not impossible that the entire track, from Omaha to Sacramento, will be finished in 1869 instead of 1870. The means provided are ample, and all that energy, men and money can do to secure the completion of this

GREAT NATIONAL WORK,

at the earliest possible day, will be done.

THE UNION PACIFIC RAILROAD COMPANY receive:

I.—**A Government Grant** of the right of way, and all necessary timber and other materials found along the line of its operations.

II.—**A Government Grant** of 12,800 acres of land to the mile, taken in alternate sections on each side of its road. This is an absolute donation, and will be a source of large revenue in the future.

III.—**A Government Grant** of United States Thirty-year Bonds, amounting to from $16,000 to $48,000 per mile, according to the difficulties to be surmounted on the various sections to be built. The Government takes a second mortgage as security, and it is expected that not only the interest, but the principal amount may be paid in services rendered by the Company in transporting troops, mails, &c. The interest is now much more than paid in this way, besides securing a great saving in time and money to the Government.

IV.—**A Government Grant** of the right to issue its own FIRST MORTGAGE BONDS to aid in building the road, to the same amount as the U. S. Bonds, issued for the same purpose, and *no more*. THE GOVERNMENT PERMITS the Trustees for the First Mortgage Bondholders to deliver the Bonds to the Company only as the road is completed, and after it has been examined by United States Commissioners and pronounced to be in all respects a first-class Railroad, laid with a heavy T rail, and completely supplied with depots, stations, turnouts, carshops, locomotives, cars, &c.

V.—**A Capital Stock Subscription** from the stockholders, of which OVER EIGHT MILLION DOLLARS have been paid in upon the work already done, and which will be increased as the wants of the Company require.

VI.—**Net Cash Earnings** on its Way Business that already amounts to MORE THAN THE INTEREST on the First Mortgage Bonds. These earnings are no indication of the vast through traffic that must follow the opening of the line to the Pacific, but they certainly prove that

First Mortgage Bonds

upon such a property, costing nearly three times their amount,

Are Secure Beyond any Contingency.

The Company have abundant means in their treasury, and make no appeal to the public to purchase their Bonds, as the daily subscriptions are entirely satisfactory; but they submit that, for entire security and liberal returns, there is certainly no better investment in the market.

The Union Pacific Bonds are for $1,000 each, and have coupons attached. They have thirty years to run, and bear annual interest, payable on the first days of January and July at the Company's Office in the City of New York, at the rate of six per cent. in gold. The principals is payable in gold at maturity. At the present rate of gold, these bonds pay an annual income on their cost of

NEARLY NINE PER CENT.,

AND IT IS BELIEVED THAT THEY MAY SOON BE AT A PREMIUM.

The Company reserve the right to advance the price to a rate above par at any time, and will not fill any orders or receive any subscriptions on which the money has not been actually paid at the Company's Office before the time of such advance.

Subscriptions will be received in New York

At the Company's Office, No. 20 Nassau Street,

AND BY

John J. Cisco & Son, Bankers, No. 59 Wall Street,

And by the Company's advertised agents throughout the United States.

Remittances should be made in drafts or other funds par in New York, and the Bonds will be sent free of charge by return express. Parties subscribing through local agents, will look to them for their safe delivery.

A PAMPHLET AND MAP FOR 1868 has just been published by the Company, giving fuller information than is possible in an advertisement, respecting the Progress of the Work, the Resources of the Country traversed by the Road, the Means for Construction, and the Value of the Bonds, which will be sent free on application at the Company's Offices or to any of the advertised agents.

JOHN J. CISCO, Treasurer, New York.

je13:3t

LINDSAY'S PATENT.

The merits of this Wrench are too well known to need comment Go to the nearest hardware store and LOOK AT IT BEFORE PURCHASING ANY OTHER, or send for illustrated circular to

MANVEL & LINDSAY,
New York.

oct12:1y

IRON & WOOD WORKING MACHINERY

TURBINE WATER-WHEELS.

LUCIUS W. POND,

No, 98 LIBERTY ST. N. Y., and Worcester, Mass.

nov.2.1y q

McNAB & HARLIN,
MANUFACTURERS OF
BRASS COCKS,
PLUMBERS' BRASS WORK,
WROUGHT IRON PIPE, FITTINGS, &c.

No. 86 John street, New York. Ap18:6m.

FILE-COVERS. FILE-COVERS.
FILE-COVERS. FILE-COVERS.
FILE-COVERS. FILE-COVERS.

For preserving the numbers of the AMERICAN JOURNAL OF MINING. Price $2. For sale by WESTERN & CO. 37 Park Row, N.Y.

THE ADVERTISER
HAS A
ROOFING SLATE QUARRY,
FULLY DEVELOPED,

and desires a partner with a cash capital of $10,000. This Quarry is convenient for shipping, and presents great inducements for large returns on an investment. Ample references given. Apply to E. B., Hoffman House, where samples can be seen. je13-6t

---

IMPORTANT TO MINERS.

Every description of Analysis and Assays carefully attended to, and returns promptly made, by

WESTERN & COMPANY,
No. 37 Park Row, New York City.

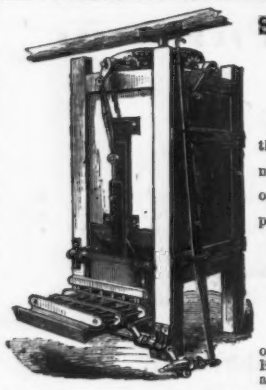
MISCELLANEOUS.

JOHN P. GRUBER'S

183, 184, 186 and 188 Chatham Square, NEW YORK
Corner Mott Street,

Received the First Premium for Filtering Apparatus, Water Works and Scales. may16:6m

---



STAR BRICK MACHINE

The best, strongest and cheapest in the United States. We warrant it to make more and better Bricks than any other Machine now in use. It takes less power and help to run it.

Manufactured and sold by

JAMES MARTIN,

No. 160 Washington street, Jersey City, N. J.
or, J. H. Rennick, Room 28, No. 71 Broadway.
aug3;1y

IRON AND STEEL WIRE ROPE.

MANUFACTURED BY
JOHN A. ROEBLING,
TRENTON, N. J.
FOR

INCLINED PLANES, MINING,
STANDING SHIP RIGGING,
SUSPENSION BRIDGES, FERRIES,
STAYS AND GUYS ON DERRICKS,
CRANES & SHEARS, ELEVATORS,
TILLERS, &c

A large stock of Wire Rope constantly on hand Orders filled with dispatch.
☞ For strength, size and cost see circular, which will be sent on application. nov3:68-tf

---

CIRCULAR SAWS
WITH
EMERSON'S PATENT MOVABLE TEETH.

These saws are meeting with unprecedented success, and their great superiority over every other kind, both as to efficiency and economy is now fully established,

ALSO,

EMERSON'S
PATENT PERFORATED

Circular,

and Long Saws.

(All Gumming avoided.) And

Emerson's Patent Adjustable Swage,

or Spreading, Sharpening, and Shaping the teeth of all Splitting Saws. Price $5. Manufactured by the AMERICAN SAW COMPANY,

Office No. 2 Jacob Street, near Ferry Street, New York.

Send for new Descriptive Pamphlet and Price List 1v4-ps

ARION PIANO-FORTE.—PATENTED.

Pre-eminently the best Piano ever constructed, unrivalled for tone, durability and elegance of finish. The Brooklyn Daily Times says: "It has in higher degree than any Piano that we have met with, the singing quality or character that musicians so much admire and seek for in a Piano; the bass notes reminding you of the deep-toned notes of a large organ. The middle octaves are more elastic and clear than in most other Pianos, while the upper or treble notes possess that pure, distinct, bell-like clearness that is so necessary to the correct rendering of difficult pieces of music, and that also lends such a charm to melody." Professor J. M. Abbott, organist of the Church of Our Saviour, in Brooklyn, says: "For elasticity of touch, for the singing quality so much sought for by artists, and for richness and purity of tone, it is unexcelled by any Piano I have ever used." Professor John W. Henry Canoll, editor of the American Educational Monthly, says: "* * * * Listen, however, to one of another class, for example, one of the Arion Pianos, made by Manner & Co.; bow your head as the bass sends forth its riches, clear and unblurred; observe the singing, swelling melody that in its middle octaves so wondrously represents vocal expression, and which predominates above even the silvery brilliancy of the upper treble; then reflect that this is a scientifically constructed and durable instrument." * * *

Is for sale at the Manufactory and Warerooms, 187 and 189 Bowery, second door above Delancey street. MANNER & CO.

N. B.—We have a number of Second Hand Pianos to sell or rent. 12-v:4:qp

---

DUNCAN, SHERMAN & CO.,
BANKERS,
CORNER PINE AND NASSAU STREETS, N. Y.

ISSUE CIRCULAR NOTES AND LETTERS OF CREDIT FOR TRAVELLERS, AVAILABLE IN ALL THE PRINCIPAL CITIES OF THE WORLD,

MERCANTILE CREDITS

For Use in Europe, China, etc. Also Make

Transfers of Money to Europe and Pacific Coast by Telegraph.

feb3;tf INTEREST ALLOWED ON DEPOSITS.

EVANS & GOULD,
PLAIN AND FANCY
BOOKBINDERS & PRINTERS,
117 and 119 Third Avenue,

Northeast corner 14th street, may16:2m NEW YORK.

MISCELLANEOUS.

ROOT'S WROUGHT IRON SECTIONAL
SAFETY BOILER.

Has no large sheet iron shell to explode, is composed entirely of wrought iron tubes tested to 300 pounds, water and steam inside of them, offers

POSITIVE SAFETY FROM DESTRUCTIVE EXPLOSION.

Great economy of fuel over other boilers replaced by it,
DURABILITY,
COMPACTNESS,
SIMPLICITY,
GREAT FACILITY FOR EXAMINATION, CLEANING AND RENEWAL,
FREEDOM FROM SCALE AND CORROSION,
HAS NO JOINTS IN THE FIRE,

Lightness, hence low freights, largest Boilers equal in strength to smallest, as parts are uniform in size and strength, and very light, hence largest boilers can be erected in most inaccessible locations, and transported on mules for

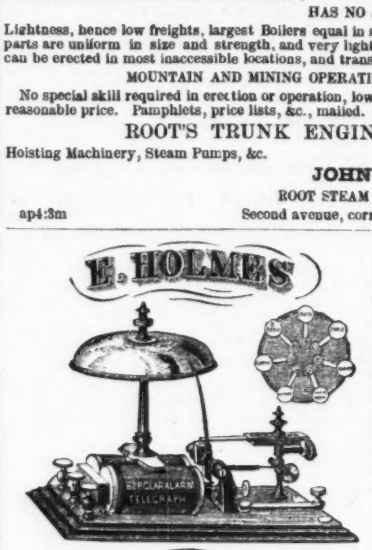
MOUNTAIN AND MINING OPERATIONS.

No special skill required in erection or operation, lower cost for setting an reasonable price. Pamphlets, price lists, &c., mailed. Also,

ROOT'S TRUNK ENGINES,

Hoisting Machinery, Steam Pumps, &c.

JOHN B. ROOT,
ROOT STEAM ENGINE WORKS,
ap4:3m Second avenue, corner 28th street, N. Y.



This one Bell, located in the sleeping room, rings upon the opening of each window and door of the house. It is a watchman that has but one house to protect, is always on the spot, never goes to sleep, cannot be bought off, and an experience of seven years without a failure proves that it is perfectly reliable and satisfactory.

OFFICE:
201 BROADWAY, New York,
AND
114 DEARBORN St., Chicago, Ill.
je134t

NEW YORK BELTING AND PACKING COMPANY,
MANUFACTURERS OF
VULCANIZED RUBBER FABRICS,
ADAPTED TO MECHANICAL PURPOSES.

Patent Smooth Belting, (Patented Nov. 22, 1859,) vulcanized between layers of a patent metallic alloy, by which the stretch is entirely taken out, the surface made perfectly smooth, and the substance thoroughly and evenly vulcanized. This is the only process that will make reliable Rubber Belting

Hose never needs oiling, and warranted to stand any required pressure

Steam Packing in every variety, and warranted to stand 300° of heat.

Solid Emery Vulcanite.—Wheels made of this are solid, and resemble stone or iron; will wear out hundreds of the ordinary wheels.

Directions, Prices, etc., can be obtained by mail or otherwise.

15-4 -qp JOHN H. CHEEVER, Treasurer
Warehouse, 37 & 38 Park Row, N. Y.

JOHN WATERS' SONS,
GOLD AND SILVER REFINERS,
AND
ASSAYERS.
ESTABLISHED 1839.
No. 57 VESEY STREET, NEW YORK.
ANALYSES MADE OF ORES, MINERALS, ETC., BY FIRE.

Lead and Copper Ores a Specialty.
Miners are assured of careful and accurate assays.
Gold Dust and Bars Purchased. mar9:3m

Montana Mining Agency.

WM. Y. LOVELL. JAS. GOSTLING.

We buy and sell every description of mining property in this Territory, examine and report upon mines, adjust mining accounts, procure U. S. Patents for mining property, examine Titles.

Specimens from any Lode, or Cabinets of the Minerals of this Territory, sent by express to any address.

Charges moderate.

LOVELL & GOSTLING,
ap11:6m Box 200 Virginia City, M. T.

E. S. SEARS' WOOD ENGRAVING ESTABLISHMENT.

ENGRAVING, DESIGNING AND PHOTOGRAPHing on Wood, in all its branches, viz.: Portraits, Fine Book Work, Machinery, Maps, Buildings, Illustrated Catalogues, Views, &c. N. B Special attention given to Color Work of all descriptions. 48 BEEKMAN STREET, New York. aug14;1y

---

THE ANNUAL OF SCIENTIFIC DISCOVERY.
THE ANNUAL OF SCIENTIFIC DISCOVERY.
THE ANNUAL OF SCIENTIFIC DISCOVERY.
THE ANNUAL OF SCIENTIFIC DISCOVERY.
FOR 1868.

For sale by WESTERN & CO. Sent on receipt of price, TWO DOLLARS.

Ten Eyck Axe Manufacturing Co.,
MANUFACTURERS OF WARRANTED
CAST STEEL EXCELSIOR AXES,
Picks, Hatchets, and Mining Tools of all Descriptions.
FACTORY, COHOES, N.Y.
THOMAS E. GAYNOR, Agent,
jan18:6m 57 Beekman street, N. Y.

WATER-PROOF SAFETY FUSE.
Warranted Sure Fire if not Cut in Tamping.
MANUFACTURED BY
UREN, DUNSTONE & BLIGHT,
EAGLE RIVER, KEEWENAW CO., (L. S.) MICHIGAN.
TRY IT! All we ask is A FAIR FIELD AND NO FAVOR. NOV 10-1y-qp

PUBLICATIONS.

THE NEW YORK EXPRESS FOR 1868,

And Campaign Weekly Express.

SEND FOR SPECIMEN COPY AND PROSPECTUS.

To the Friends of the N. Y. Express:

We solicit from our friends, personal and political, a continued interest in the EXPRESS and its respective publications—Daily, Semi-Weekly, and Weekly. It is nearly thirty-one years since the DAILY EXPRESS commenced in this city with its present proprietors, and in all that time it has been earnestly devoted to the Union and Equality of the States, the rights of the people, a Constitutional Government, the maintenance of Law and Order, the Diffusion of Knowledge, and to,whatever would secure the greatest good to the greatest number of people. Our Platform is the same to-day on all these points of National interest as in 1836, and through all Administrations, from that time to the present. Nor is it likely that time will change it while we live and the Government endures, inasmuch as we believe in what is tried and good, rather in that which is vacillating and revolutionary.

To that portion of the people, therefore, who believe in a stable government, good men, good laws, and equal and exact justice, we shall continue to appeal for that measure of public favor which is due to the principles we avow.

The year 1868 will be the most important in the history of the Government. It will test the right of the white race to rule the country, and whether the American people have the power to resist the purposes of a Jacobin and lawless Congress to give the negro supreme control over nearly one-third of the States and millions of people. This issue is to be decided at the Presidential election in 1868, and we invoke the aid of all who believe in the Government of the Fathers and in the supremacy of the white race.

The EXPRESS we shall aim to make more and more, in all its departments, a thorough National and Local Newspaper—a Home Journal for the Family—a Political Newspaper for the Politician—a Financial and Business Journal for the Banker and man of business. For the rest, in the future, as in the past, the EXPRESS must speak for itself.

The EVENING EXPRESS having the largest circulation of any established evening paper in the State or City, is especially worthy of the attention of all classes of advertisers in their respective departments of trade.

TERMS:

THE EVENING EXPRESS.

Single Copy	4 cents
City Subscribers, served by Carriers	24 cts. per week
Mail Subscribers, one year	$9 50
Six Months	5 00
Price to Newsdealers	$3 per 100

THE SEMI-WEEKLY EXPRESS.

One Copy, one year (104 issues)	$4 00
Six Months	2 00
Two Copies, one year	7 00
Five Copies, one year	15 00
Ten Copies, one year	28 00
Twenty-five Copies, to one address	50 00

An extra copy will be sent to any person who sends us a club of ten or over

WEEKLY EXPRESS.

One Copy, one year (52 issues)	$2 00
Six Months	1 25
Three Copies, one year	5 00
Five Copies, one year	8 00
Ten Copies, one year	15 00
Fifty Copies, to one address	50 00

An extra copy will be sent to any person who sends us a club of ten or over.

To clergymen the WEEKLY will be sent for $1 50 per annum.

Four editions of the EVENING EXPRESS are published, 1:30, 2:30, 3:30, and 5 o'clock

With the Latest, Political, Commercial and Marine News.

The Latest Law Reports, and with the very latest news from the adjoining Cities, States, and all the States of the Union.

Also, a complete daily record of Stocks, and the Money Market to the last hour.

We particularly call the attention of Farmers and Merchants, in all parts of the country, to our Local Market and Business Reports, which are now very complete.

The Semi-Weekly and Weekly Editions will have all the news of the week up to the hour of going to press.

We have also made arrangements to club the EXPRESS with the AMERICAN AGRICULTURIST, a monthly paper devoted to Agriculture; THE RIVERSIDE MAGAZINE, for Young Folks; THE PHRENOLOGICAL JOURNAL, and the PEOPLE'S MAGAZINE, thus offering to our subscribers a great variety of choice reading at very favorable terms.

☞ Remit by draft, Post-Office Money Order or Registered Letter, otherwise we cannot be responsible.

Subscribers are in all cases requested to send to the office direct. We have no agents, and none should be waited for—to call.

Specimen copies sent free upon application, and as many as may be wanted.

READ—SUBSCRIBE—CIRCULATE.

PRESIDENTIAL CAMPAIGN, 1868.

The importance of the crisis of 1868 to the saving of the Government of our fathers—the re-establishment of the Constitution and restoration of the Union, and the necessity of a more healthful and steady business to the people, demands of all Democrats and conservative citizens and people in the country, some efforts to counteract the immense exertions of those who are using the spoils of office and fortunes acquired by war, to maintain the present disorganized state of the country. In view of the present exigency of public affairs, and in order to spread political information as widely as possible, and at the mere cost of paper, during the coming campaign, at the solicitation of friends in the State and country, we now offer the following premiums to agents:

Clubs of 25 Weeklies at $1 per c		$5
" 50 "		10
" 100 "		20
" 15 Semi-Weeklies at $2		5
" 25 "		10
" 50 "		20
" 5 Dailies at $9 50		8
" 10 "		10

These premiums will be paid for all clubs sent us from this date until May 1st. We hope at least to add ten thousand to our list of weekly subscribers between this time and the Democratic nomination on the 4th of July.

ap.18:3m J. & E. BROOKS, Proprietors.

THE PROTESTANT CHURCHMAN,

A Religious Family Paper,

THE LEADING EVANGELICAL ORGAN IN THE PROTESTANT EPISCOPAL CHURCH.

Devoted to the advocacy of Evangelical Truth against Ritualism and Rationalism; the defence of the "Liberty of Preaching," and the cultivation of fraternal relations with Evangelical churches.

Editors: Rev. Messrs. John Cotton Smith, D.D., Marshall B. Smith, and Stephen H. Tyng, Jr.

The Editors are assisted by a large corps of clerical and lay contributors in all parts of the United States, in England, and on the Continent.

Published every Thursday at No. 633 Broadway, New York.

TERMS: Four Dollars per annum; to clergymen, three dollars; to theological students and missionaries, two dollars. Club rates, five copies to one address, fifteen dollars; twenty copies, fifty dollars.

☞ Specimen copies furnished. Address,

THE PROTESTANT CHURCHMAN,

Ap.15:6m Box 6,009 P. O., N. Y.

THE CHURCH UNION.

"The Freest Organ of Thought in the World."

☞ The largest Religious Paper in the World, averaging Nine columns of reading matter each week more than any other competitor.

It aims to *lead* public opinion upon all subjects, and to represent or echo the sentiments of no party or sect. Edited by seven editors, from seven different denominations, whose names are not known even to each other.

☞ Terms, per year, - - - - - - - - - $2 50

☞ Terms to Agents (for each subscriber) - - - - $1 00

PREMIUMS.

A SEWING-MACHINE, worth $55, for twenty-five subscribers and $62 50. Agents may choose their machines.

WEBSTER'S DICTIONARY, for $25 and ten names.

"ECCE ECOLESIA," for two names.

A GOLD WATCH, American Watch Co., worth $125, for eighty-five names. Silver Watch, for twenty names; Silver Watch for fifteen names.

TEN BOTTLES WOODWORTH'S VIOLET INK, for ten subscribers and $25.

☞ THE CHURCH UNION is the only paper that publishes Henry Ward Beecher's Sermons, which it does each week, publishing the morning or evening Sermon of the Sunday preceding.

Send for a specimen copy, enclosing ten cents. Address,

HENRY E. CHILD, Publisher,

Ap18 3m 9 Beekman street, New York City.

METALLURGY.

WILSON'S PATENT

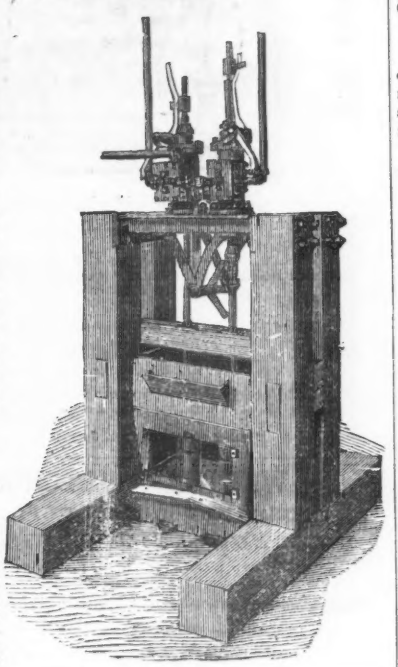
STEAM STAMP-MILL COMPANY,

OF PHILADELPHIA, PA.,

Are now prepared to supply Miners and other parties with their

NEW STEAM STAMP MILLS,

AT THE SHORTEST NOTICE.



These Mills, for durability, efficiency, and facility of transportation are not excelled by, and are believed to be superior to, any other Mills manufactured. The Valve Gear is of the simplest and most durable construction; readily adjusted by moveable cams on the Piston Rods or Stamp Stems, there by giving the operator absolute control of the length, and velocity of motion and force of the blow. These mills are adapted for both dry and wet crushing, and for the hardest rock or softest cement. For full particulars call on or address

WILSON'S PATENT STEAM STAMP MILL CO.,

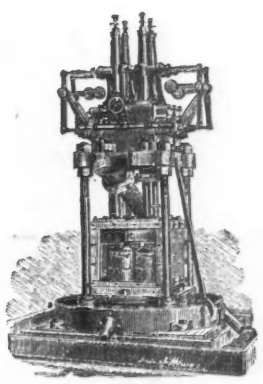
326 Walnut St.,

Philadelphia, Penn.

N. B.—One of the above Mills can be seen in operation at Messrs. Cresson & Smith's Machine Works, S. E. corner Eighteenth and Hamilton Sts., Philadelphia. jan11:1y

NEW YORK STEAM ENGINE COMPANY,

Manufacturers of



STEAM STAMPING MILL,

STATIONARY AND PORTABLE ENGINES,

Engine Lathes, Planers, Bolt Cutters, Upright Drills, and Machinist's Tools of all Descriptions.

OFFICE AND WAREROOMS, 126 & 128 CHAMBERS ST., N Y feb13:3m

THE WHELPLEY AND STORER METHOD

OF USING

PULVERIZED FUEL.

The undersigned offers for sale Rights and Machinery for employing this method, by which the Slack and Waste Coals are utilized, and made equal to solid coal, and a vastly increased efficiency obtained for all kinds of Fuel in the generation of Steam, in the heating of Furnaces, and in Metallurgic Processes.

Also,

MILLS AND FURNACE RIGHTS,

for working the Ores of Copper, Gold, Silver, Zinc, etc., according to the processes designed and employed by Messrs. W. & S.

JACOB J. STORER,

jan25:3m 105 State street, Boston.

LABORATORY OF INDUSTRIAL CHEMISTRY.

DIRECTED BY

PROF. H. DUSSAUCE, Chemist.

Advices and consultationson chemistry, applied to arts and manufactures, agriculture, metallurgy, etc.; plans of factories, drawings of apparatus. He can furnish the most recent improvements in chemical fabrications, such as chemical products, petroleum soaps, candles, colors of lead and zinc, varnishes ceramic glass, wines, liquors, vinegars, matches, inks, dyeing and calico printing, perfumery, colors of coal tar, tanning, etc., etc.

He will give all necessary information to exhibitors to the great Exhibition Address New Lebanon, Columbia Co., N. Y. 8.4.qp

THE MASS. INSTITUTE OF TECHNOLOGY

Offers a thorough and practical general education, founded upon the Mathematical, Physical and Natural Sciences, English and other Modern Languages, and Mental and Political Science; also, a full course of Studies and Practical Exercises for students preparing for the professions of the Civil, Mechanical, and Mining Engineer, Chemist, Metallurgist and Architect.

The course extends through four years, the studies of the first and second being common to all; those of the third and fourth selected to suit the profession in view.

Minimum age of admission, sixteen. Entrance examinations are held July 13th and September 28th. For fees and other particulars address "Prof. WILLIAM P. ATKINSON, Sec'y of Faculty Mass. Inst. of Technology, Boston."

may16:4t WILLIAM B. ROGERS, President.

DAVID COGHLAN

MINING ENGINEER,

SCRANTON, PA.

Would undertake to inspect or manage Gold or Silver Mines. Has had a long experience in directing mining concerns and metallurgic works, and has been employed for the last year and a half as Mining and Civil Engineer under some of the principal companies of the Anthracite regions of Pennsylvania, to whom references can be given, as well as to parties of the highest respectability in New York City. jan 18:1y

METALLURGY.

KUSTEL'S NEW WORK.—A TREATISE ON THE

CONCENTRATION OF ALL KINDS OF ORES,

INCLUDING THE

CHLORINATION PROCESS FOR GOLD-BEARING SULPHURETS, &c.,

BY GUIDO KUSTEL,

(Mining Engineer and Metallurgist, author of "Nevada and California Processes of Silver and Gold Extraction.")

This great work should be in the hands of every mining engineer in the country. It is the only manual in the language containing the latest improvements which Science has made in the important department of concentration, and a full and detailed account of the celebrated and successful Plattner chlorination process. Both parts of the book are illustrated with diagrams and plates, so that every intelligent engineer can erect apparatus or make working drawings for himself.

PRICE TEN DOLLARS.

FOR SALE BY

WESTERN & COMPANY,

(Sole Agents for the Atlantic States, at the office of the AMERICAN JOURNAL OF MINING. feb22 tf

PROFESSOR HENRY WURTZ,

Formerly Chemical Examiner in the U. S. Patent Office, may be employed professionally as a SCIENTIFIC EXPERT. Geological Examinations and Reports, Analyses and Assays, etc., etc. Practical Advice and Investigations in the CHEMICAL ARTS and MANUFACTURES. Invention and Examination of new chemical methods and products. Address 26 Pine street, Rooms 35 and 36. Always in from 12 to 3.

☞ Written communications preferred.

Important to Gold and Silver Miners and Companies.

PROFESSOR WURTZ,

Who is the Inventor and Patentee of the new and wonderful uses of SODIUM IN WORKING GOLD AND SILVER ORE AND JEWELERS' SWEEPINGS.

Will furnish at the above address information relating thereto together with experimental packages of

SODIUM AMALGAM.

All preparations and instructions elsewhere obtained are spurious and unreliable.

Working Experiments on Amalgamation of Ores, Etc.

Prof. W. has in operation a large and small Hepburn Pan, for working 1,000 lbs. and 20 lb. charges of material for experimental purposes.

Gold Mills and all kinds of Miners' Machinery selected with care and judgment. 8.4.xm

MANHATTAN

METALLURGICAL AND CHEMICAL WORKS,

552 and 554 West Twenty-eighth Street, N. Y.

ASSAYS OF GOLD, SILVER, COPPER AND LEAD ORES.

Special attention given to the Analysis of Ores, Minerals, Clays, Waters, and General Commercial Products of all kinds.

Tests of Gold, Silver, and Lead Ores, by smelting, in quantities of One Hundred Pounds to Fifty Tons.

Gold and Silver Ores worked in Parcels of One Hundred Pounds to Fifty Tons, by Amalgamation Process.

Gold Dust, Bars, Old Gold and Silver bought. Jewellers' sweeps worked and refined.

Founders and Metal Workers furnished with Alloys of every description.

Parties requiring plans and specifications for the erection of Smelting Works, can be supplied, and the actual process while working shown.

Plans and specifications furnished for works, and processes for the manufacture of Sulphuric Acid, Soda Ash, and general Chemical produce.

Superintendents: MR. CHARLES F. SECOR, formerly of Nevada and California, and MR. WILLIAM WEST, formerly of Swansea, Wales.

For sale, 1 Hepburn & Peterson Pan, and 1 Bogardus Quartz Mill. Inquire at the Manhattan Metallurgical and Chemical Works, 552 and 554 West Twenty-Eighth street.

Parties shipping Ores to these works for treatment must prepay all freight charges.

For engagements and terms, apply at the Works or to

SECOR, SWAN & CO.,

P. O. Box 1412. m30:1y **66 Broadway, New York.**

HUEPEDEN & WOLTERS,

ANALYTICAL CHEMISTS and ASSAYERS.

AND CONSULTING ENGINEERS,

Central City, Colorado.

Examinations of, and Reports on Mineral Lands and Mines, furnished on application. Analyses and Assays of Ores executed with accuracy. Plans and specifications furnished for erection of Smelting Works, Desulphurizing Furnaces, &c., &c. 24:4:f

CHARLES SCHENCK, a resident of Pah-Ranagat Silver Mining District, and County Surveyor of Lincoln county, Nevada, begs leave to inform the mining public, that he is able and ready to give true and valuable information about mining property in this District.

Address CHARLES SCHENCK, M E.,

Hiko, Pahranagat District, Nevada

References—Wm. A. Smith, Esq., 25 and 27 Nassau street.

Prof. Harper, New York, etc. oct12, '67:'68

ADELBERG & RAYMOND,

MINING ENGINEERS AND METALLURGISTS,

90 BROADWAY, N. Y.

Mines, Mineral Lands, Machinery and Metallurgical or Chemical Works examined and reported upon. Advice given to miners, chemists and manufacturers. Assays and analyses made. Competent Engineers furnished to companies individuals 5:3:qp

R. P. ROTHWELL,

MINING & CIVIL ENGINEER AND METALLURGIST,

From the Imperial School of Mines, Paris, Member of the Geological Society of France, &c.

OFFICE, WILKESBARRE, PA.

Having had a large practical experience in Europe and this country is prepared to examine and report on all kinds of Mineral property, superintend Mines and Metallurgical Works, Assay Ores, &c. 18:2:qp

SHEFFIELD SCIENTIFIC SCHOOL

OF YALE COLLEGE,

NEW HAVEN, CONN. INSTITUTED IN 1846,

Instruction given in Practical Chemistry, Metallurgy, Mineralogy, Geology, Mining, Mechanical and Civil Engineering, etc. Circulars sent on application to Prof. D. C. GILMAN, Secretary. Ap.25:6m

GEO. W. MAYNARD,

PROFESSOR OF MINING and METALLURGY

AT THE RENSSELAER POLYTECHNIC INSTITUTE,

TROY, NEW YORK.

Reports, Consultations, Assays. ☞ Especial attention given to Metallurgical Operations. Jan 18.1y

CASUALTY INSURANCE.

Considering the great number of insurance companies, and the almost innumerable throng of gentlemanly insurance agents, and further remembering how the press by daily, weekly, and periodical notices has poured out its libations of praise in honor of insurance, our readers will perhaps accuse us of assurance in meddling with a subject which is so well represented by live men and dead letters. But we can inform our readers that we are interested in the subject, and if all of them had been in a hospital with broken limbs, as it was once our misfortune to be, and then too away from our home, friends and relatives, they would hasten their steps to the Casualty Insurance Company's office, and regard the association as a philanthropic and useful organization. Cast a glance at the dangers in our mills, factories, workshops, on our railroads, steamboats, and conveyances generally. Inspect the hospitals, poorhouses, and asylums of our land. Go, reader, and visit the toiling clerk or industrious mechanic on his bed of pain; see a sorrowing wife and family who are suffering still further for pecuniary aid and the means of support that accident has rendered necessary—do this and then tell us not to be silent on insurance and the benefits resulting therefrom.

We have but to turn to our long list of advertisements, in order to be reminded of the great number of miners, mechanics and operatives who are all employed in mechanical operations, and who are liable at any time to accident that will deprive them of health, work, and thereby their means of support. And yet it is a fact, that this very class of men are generally improvident, and take no special care in regard to future needs. Now in view of accidents or casualties that are "ills that flesh is heir to," that lie in wait for humanity from the cradle to the grave, we can only say that a wise man will protect himself against such fatal or serious consequences—from distress to his family in the event of death, and to himself and family if he be disabled from the discharge of his ordinary duty. Allowing the necessity of insurance, what are the immediate benefits therefrom, and where can accidental insurance be effected? These inquiries are easily answered. If accident cause disability, a liberal weekly compensation is allowed as long as the patient is incapable of transacting business that will give him means of livelihood; if a person's life is lost, a large sum is given to the family, who, if they ever require pecuniary assistance, will require it then. In short, by the payment of a few dollars, any one can insure the receipt of thousands, in case of death by accident, or a certain sum each week while disabled. For instance, the UNITED STATES CASUALTY COMPANY, which is a MUTUAL ACCIDENT COMPANY, insures against accidents of every description. This Company issued its first policy April 13th, 1866. The cash capital is now about $100,000, with a large surplus, and the Company is purely mutual, as it pays dividends to all its policy-holders. This dividend is declared after ample reservations, in order to provide for all future contingencies. Thus the mutual feature of this Company—the only Mutual Accident Company in America—it will be observed, offers to policy-holders the best inducement of all in the United States. Under the general accident risk, five dollars will secure a policy granting Insurance for one thousand dollars in the event of death by any description of accident, with five dollars per week compensation for any injury causing total disability from business. We can confidently refer our readers to EDMUND C. FISHER, the President of this Company, and a gentleman who we know is thoroughly acquainted with all Insurance business, and also to HENRY D. WALKER, General Insurance Agent, who is the Actuary for the American Mutual Life Insurance and Trust Company, chartered in 1847, and now possessing a capital of about $600,000. HON. BENJAMIN NOYES is its President.

STURTEVANT'S

NOISELESS PRESSURE BLOWERS

are made of all sizes, for all purposes where blast is required. They embrace two classes, the regular Pressure Blowers, for Rolling Mills, large and small Foundries, Forges and Blowpipes, and the second quality or cheap Blowers, for Steam Boilers, Ventilation, Coffee Roasting, &c.

For Circulars with full particulars and price lists, address

B. F. STURTEVANT,
PATENTEE AND SOLE MANUFACTURER,
72 Sudbury street, Boston, Mass.

ap4:12t-os

AGENTS AND CANVASSERS WANTED
IN EVERY CITY AND TOWN IN THE UNITED STATES,
FOR THE
AMERICAN JOURNAL OF MINING.

Liberal inducements. Specimens sent on receipt of Ten Cents. Address

WESTERN & COMPANY,
37 PARK ROW, N. Y.

SOUTHARD, HOBSON & CO.'S
STONE DRILLING MACHINE.

Portable, Durable and Cheap. Can be driven by hand, steam, or other power. 528 WATER STREET, New York City.

The only machine for hand power that is perfectly simple and portable. Will never get out of order with common management. Will repay its cost several times over in one season, saving at least three-fourths of cost of drilling.

je20:6m

W. L. WASHBURNE,
MANUFACTURER OF
EMBLEMATIC SIGNS AND WEATHER VANES,
708 BROADWAY, 12 COURTLANDT, and 178 WOOSTER STREETS,
je6:3m NEW YORK

EXPOSITION UNIVERSELLE, PARIS, 1867.
WHEELER & WILSON,
625 Broadway, New York.
Awarded, over 82 competitors,
THE HIGHEST PREMIUM,

THE GOLD

MEDAL,

FOR PERFECTION OF SEWING AND BUTTON-HOLE MACHINES.

DEPARTMENT OF STATE, WASHINGTON, 9th May, 1868.

To WHEELER & WILSON, of New York:

SIRS: The Department has received One Gold Medal, awarded to your firm on Sewing and Button-Hole Machines, at the Paris Universal Exposition of 1867.

Your obedient servant,
WILLIAM H. SEWARD.

Messrs. WHEELER & WILSON, 625 Broadway, N. Y., received the GOLD MEDAL and THE ONLY ONE awarded for the most perfect Sewing Machine and Button-Hole Machine exhibited at the Paris Universal Exposition.

J. C. DERBY, U. S. General Agent for the Exposition.

The only Gold Medal for the manufacture and perfection of Sewing Machines and Button-Hole Machines was awarded to Messrs. Wheeler & Wilson, of New York.

HENRY F. Q. D'ALIGNY,
Member of International Jury and Reporter of the same.

WALTHAM WATCHES!
GREAT REDUCTION IN PRICE.
HOWARD & CO., NO. 619 BROADWAY, NEW YORK.

Silver Hunting Watches	$18
Gold Hunting Watches, 18 carat cases	80
Gold Hunting Watches, Ladies' size	70

Sent at these prices by Express, "C. O. D." to all parts of the country, with privilege to examine before paying. Each Watch warranted by special certificate from the American Watch Co. Any one desiring a reliable timekeeper is requested to write for our descriptive price list. Address, in full,
HOWARD & CO., No. 619 Broadway, New York.
je6:4t

VERY VALUABLE GOLD MINE FOR SALE
AT AUCTION.

WILL be sold by virtue of authority vested in the undersigned, at the Exchange Sales Room in the City of Baltimore,
On Tuesday, the 23d day of June, 1868,
at one o'clock, P. M., all the property of the
BALTIMORE AND MONTGOMERY MINING COMPANY,
better known as the "STEELE GOLD MINE," on the Uharie river, in Montgomery county, *North Carolina*, containing about
700 ACRES OF LAND,
with all its equipments, consisting of two Steam Engines—one of 10 horse power, and the other of 25 horse power; Pumps; two round Buddles, 16 feet diameter; three Washers with Rocker and Sluice Boxes; buildings for Office, Store and Superintendent; a large Boarding House, Barn, Stables, Blacksmith Shop, and about 20 small Houses for Miners, &c.

This Mine is known as one of the most valuable in this country, and sufficiently developed to a depth of upwards of 150 feet, so as to justify extensive operations. The Vein is composed of argillaceous slate, and forms an auriferous bed of from 10 to 12 feet in thickness, carrying very rich string veins of free gold in its center. Thorough and reliable examinations and reports have been made by Prof. Chas. T. Jackson, of Boston; Prof. Genth, of Philadelphia, and the late Prof. Hausser, who all agree and represent this mining property of great intrinsic value. Terms to be made known on the day of sale. For further information as regards reports, &c., &c., apply to

May23:4t.os. GEO. S. BROWN, 153 Baltimore street, Baltimore, Md.

BLASTING BY ELECTRICITY.
BISHOP'S ELECTRIC FUSE,
WITH GUTTA PERCHA CAPS,
ALSO,
ELECTRIC MACHINES for use with the above, furnished to order, of any size required.
BISHOP'S GUTTA PERCHA CAPS,
FOR
EPPLODING NITRO-GLYCERINE,
with Match Fuse, on hand and furnished to order, with promptness, and
WARRANTED SURE FIRE.
THE BISHOP GUTTA PERCHA COMPANY,
113 LIBERTY STREET.
je6:tf SAM. C. BISHOP, General Agent.

MATHEMATICAL INSTRUMENTS
OF BEST SWISS, FRENCH AND AMERICAN MANUFACTURE.
T. H. McALLISTER,
je13:tf 49 Nassau street, N. Y.

WILLIAM ROBERTS,
DESIGNER AND ENGRAVER ON WOOD,
je20 **36 BEEKMAN STREET, New York.**

R. HOE & CO.,
MANUFACTURERS OF WARRANTED
EXTRA CAST STEEL SAWS,
OF EVERY DESCRIPTION.
Single and Double Cylinder, and Type Revolving
PRINTING MACHINES.

Circular Saws with Movable or Inserted Teeth.

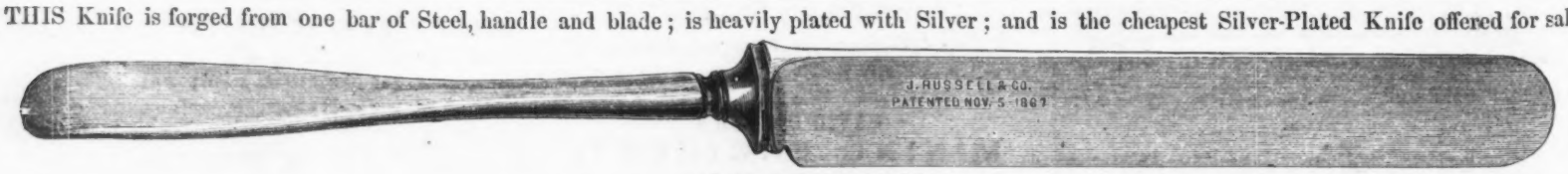
The accompanying engraving represents a new and improved Circular Saw with inserted teeth, manufactured by us, and constructed on a plan in which is combined a mechanical arrangement embracing all the requirements of inserted teeth without an objectionable feature.

These saws possess great advantages over all others. The teeth are grooved all around and comprise considerably more than half a circle; consequently when they are turned into the sockets they become as firmly fixed as if they were a part of the plate itself. These saws can be run at any speed desired, and there is no possibility of the teeth being thrown out of their sockets from any cause. There are no rivets required. In these and other respects they have an advantage over all other inserted tooth saws manufactured.

Circulars and price lists will be sent on application.

R. HOE & CO.,
31 Gold Street, New York.

THIS Knife is forged from one bar of Steel, handle and blade; is heavily plated with Silver; and is the cheapest Silver-Plated Knife offered for sale



wholesale and retail, by
DAVIS COLLAMORE & CO.,
Importers of China and Glass, 479 Broadway, (four doors below Broome Street,) New York City.

[Something that will not Break; a handle that will not crack; is not offensive to the smell, like rubber; is beautiful in design and finish; is the best possible article for Families, Hotels, Restaurants and Steamboats.
Made by J. RUSSELL & CO., Green River Works, Greenfield, Mass.